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ABSTRACT

A research project investigated long-term literacy development and its economic impact among clients of a welfare-to-work program. A follow-up study was conducted with a sample of 920 former clients of Steps to Success's educational track, which consisted of a career and life planning course followed by adult literacy education. From the sample, 229 agreed to participate and 163 actually completed a basic skills test and a questionnaire about their post-program activities. These participants had started the program and taken an initial basic skills test 1-3 years earlier. Data came from several sources: standardized tests of literacy skills; questionnaire data about post-program education, training, and employment activities and client perceptions of program impact and quality; "hard" data about clients' subsequent employment, earnings, and welfare dependence; and qualitative data from program staff and a cohort of clients followed closely over several years. Results indicated that clients raised their literacy scores substantially. These assessed skill gains were larger than those typically reported by adult education programs and represented sustained learning gains. Strong indications were that clients' assessed literacy gains were significantly associated with reductions in their future dependence on public assistance. Data analysis identified three principal factors underlying clients' outcomes and perceptions: employment, personal growth, and educational development. (Appendixes contain a list of 47 references and the questionnaire.) (YLB)

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Steps to Success:
Literacy Development in a Welfare-to-Work Program

Stephen Reder and Karen Reed Wikelund
Literacy, Language & Communication Program
Northwest Regional Educational Laboratory

Final Report to the National Institute for Literacy

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ABSTRACT

This research project investigated long-term literacy development and its economic impact among clients of a welfare-to-work program. A follow-up study was conducted with a sample of former clients of the program's educational track, which consisted of a Career and Life Planning course followed by adult literacy education. The study participants took a basic skills test and completed a questionnaire about their post-program activities. These participants had started the program and had taken an initial basic skills test one to three years before the study's testing and questionnaire activities. Data analyzed in the study came from a rich variety of sources: standardized tests of literacy skills; questionnaire data out post-program education, training and employment activities; questionnaire data about client perceptions of program impact and quality; "hard" data about clients' subsequent employment, earnings and welfare dependence; and rich qualitative data from program staff and a cohort of clients followed closely over several years.

Results of the study indicate that clients in the educational track of the welfare-to-work program raised their literacy skills substantially. These assessed skill gains, measured as differences between scores on pre-tests administered at program entry and post-tests administered by the study some one to three years later, not only are larger than those typically reported by adult education programs, but they represent *sustained* learning gains, measures of long-term literacy growth that persist years after program exit. Nearly all clients, regardless of entering skill level, experienced this literacy growth. These findings add significantly to the hard evidence that such broad and sustained literacy development occurs among adult education students. Furthermore, there are strong indications that clients' assessed literacy gains are significantly associated with reductions in their future dependence on public assistance. Differences between these findings and those of California's Greater Avenues to Independence (GAIN) evaluation are considered carefully.

Analysis of the various data collected during the study identifies three principal factors underlying clients' experiences of the welfare-to-work program and its impact on their long-term literacy development and economic outcomes. These three factors are termed *Employment, Personal Growth and Educational Development.* Clients' goals and outcomes appear to encompass these three factors with varying emphases. Interestingly, *perceived* improvements in basic skills are associated with *Personal Growth* but not with *Educational Development* (which encompasses *assessed* gains in literacy skills). Much of the qualitative information from program client and staff interviews and focus groups corroborates this finding insofar as clients tend to view improvements in their basic skills as an inseparable component of their overall personal growth rather than as the development of a free-standing set of skills. This may well be one reason why standardized basic skills tests are widely seen as not being aligned with what the clients (and perhaps most other adult students) learn in literacy programs. The finding that student perceptions of literacy development do not align with assessed skill gains may

have major implications for the design of adult literacy programs, whether they serve welfare clients or other adult learners.

These findings have important theoretical and practical implications. The study provides important new evidence of broad, sustained literacy development in adult students. There has been little previous evidence of such learning gains that has not been contaminated by artifacts of repeated testing and selective learner attrition. Such findings should help bolster theories of long-term literacy growth. The strong (but not necessarily decisive) indications in the study that such learning gains among welfare clientele are linked to reduced future dependency rates has important policy implications for upcoming welfare reform. The organization of client experiences into the three dimensions of *Employment, Personal Growth* and *Educational Development* could serve as a useful framework for the design of more effective adult education and welfare-to-work programs.

The Career and Life Planning course, whose impact unfortunately could not be statistically isolated from that of the literacy education which followed it, appears to be a broadly applicable program element through which literacy education can be integrated with personal growth and employment-oriented program components. Specific recommendations include: (1) blend educational, personal growth and work-transition program components in a carefully designed manner; (2) integrate literacy instruction with other services supporting personal growth; and (3) develop effective ways of providing continuing support services after clients secure employment and begin working.

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DEDICATION AND PREFACE

This paper is dedicated to the memory, life and work of Karen Reed Wikelund. Ms. Wikelund, a close friend and colleague of mine during the past 16 years, was a gifted researcher and powerful community activist committed to improving the standard of living and quality of life for those living in poverty, especially individuals limited by their education, language and literacy backgrounds. Karen applied much of her abundant talents, energy and enthusiasm to helping families break out of and escape from the cyclical constraints of poverty, unemployment, undereducation and low self-esteem.

Karen's ongoing program of research on the impact of life planning, motivation and basic education in helping single mothers break out of the welfare system (Wikelund, 1993) was the foundation of the present project. Karen was the lead researcher for this project, which was designed to build on her ongoing research about the life experiences and educational development of a cohort of welfare mothers she had been closely studying for several years, beginning with their entrance into the career and life planning component of a model welfare reform program. Planning to rely on her rich qualitative understanding of the cohort as an interpretive guide, our project collected a quasi-experimental follow-up "snapshot" of a larger and more representative sample of individuals who had previously participated in the program. By combining Wikelund's rich ethnographic data and understanding with the follow-up survey "snapshot", the project aimed to collect evidence about the impact of combining career and life planning with adult education services in forming a more responsive and effective "welfare reform" system.

Tragically, Karen developed lymphoma midway through the project. Her heroic battle against the deadly disease did not lessen her resolve or commitment to her work, but progressively diminished her capacity to conduct the field research with the cohort of women with whom she had been working so closely. Despite the hopeful signs of a brief remission last Spring, Karen passed away on September 24, 1994.

Along with her family, Karen's many friends, colleagues and "field acquaintances" are deeply saddened by her untimely death. Her professional and community contributions will be acknowledged and remembered in many other places. She would want us all to continue the struggle to make literacy an empowering, progressive force within individual, family and community life. I do believe her integrity, commitment and insights will continue to help us move forward on that path in years to come. But we have lost a most valuable and irreplaceable ally in this endeavor.

I am saddened and humbled by the task of trying to bring some closure here to what must remain an essentially unfinished project. Karen's knowledge, insight and voice would have added enormously to this report. Her finely honed ethnographic outlook on and in-depth knowledge of the experiences of women who passed through the *Steps to Success* program undoubtedly would greatly enrich our understanding and interpretation of the quantitative survey data that I have struggled to make sense of in Karen's absence. Unfortunately, the timing of Karen's illness prevented her from participating in the preparation of this report. As if that gap were not enough, the moving and insightful voices of the women she was working with are also very quiet here. Karen and I hoped this project might amplify their voices to the point that they might be heard by those shaping future welfare reform.

If the research, reported here without Karen's insight and voice or those of her "friends in the field", nevertheless assists this effort in some small way, I shall be very gratified. As limited as this report must be without her active involvement, I am delighted to dedicate it very humbly to Karen Wikelund's memory and progressive vision.

-Steve Reder
Portland, Oregon
November 4, 1994

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It is a pleasure to acknowledge the many people who contributed to this project in various ways. Sherryl Glenn of our staff expertly managed the complex logistics of the follow-up-mailings, testing and questionnaire activities, and accurately entered the data and maintained the project databases. Jo Ann Davich, Joann Borud, Mary Rocco, Tamara Oglesby, Naomi Sether and other staff from *Steps to Success* gave generously of their time, enthusiasm and expertise, making the testing and questionnaire activities work very smoothly. Thanks to Mt. Hood Community College and Portland Community College for providing space for the testing and questionnaire activities. Sharlene Walker and Donna Lane of the Oregon Office of Community College Services provided invaluable advice, guidance and technical assistance with the study's testing activities and materials. Saleem Ahmad of the Oregon Employment Division provided assistance using the Oregon statewide BASIS database. Joann Borud provided expert and energetic technical assistance on use and interpretation of data from the *Steps* JOBS Automated System (JAS) files. Linnell Rantapaa of Chemeketa Community College optically scanned and scored the CASAS answer sheets. Debbie White and Alice Bober of Oregon's Adult and Family Services Division provided statistical reports about Oregon JOBS programs. Pat Rickard of CASAS provided technical assistance and information about use of the BASIS and CASAS Level tests.

The cohort of women (who must remain unnamed) with whom Karen Wikelund worked so closely gave substantially of their time and energy in order that welfare programs might better assist others in the future. Finally, thanks are due to the hundreds of individuals who agreed to participate in the follow-up testing and questionnaire activities.

INTRODUCTION

Universal adult literacy and lifelong learning have recently been enacted as one of our National Education Goals. The standard envisioned for adult literacy is no longer the mere ability to read and write, but the possession of the literacy skills and knowledge needed to compete successfully in the workforce and global economy and to participate actively as a citizen in our democracy. The millions of American adults without adequate literacy skills and knowledge are experiencing increasingly limited opportunities for employment, earnings and economic self-sufficiency for themselves and their families. The society as a whole also has less opportunity to prosper economically and socially when too many of its members do not develop the literacy skills and knowledge needed to function as productive workers and citizens.

This report describes the results and implications of efforts designed to improve the literacy skills and economic self-sufficiency of a group of adults which historically has lacked such skills: those depending on public assistance to support their families. The report begins with a brief overview of the history and scope of the public welfare system and the crucial role which literacy appears to play in welfare dependence. That history leads into a brief discussion of differing views of the role for literacy training within emerging approaches to welfare reform. In considering these options for welfare reform, a number of important research questions are identified regarding the impact of adult education on literacy proficiencies and economic outcomes such as employment, earnings and welfare dependence. A review of past research indicates that more needs to be known about these relationships to serve as a foundation for developing sound welfare reform policies and programs.

The report then goes on to describe a study of these relationships among clients of a model welfare-to-work program, *Steps to Success*. Results of this study provide some important new information about the efficacy of efforts to increase welfare clients' literacy skills and the impact of increasing skills on future economic self-sufficiency. The implications of the findings are discussed in the final section of the report.

Literacy and Welfare: A Brief Overview

The growing scope of the welfare system. The major cash assistance program in the nation's welfare system is Aid to Families with Dependent Children (AFDC). In 1992 about 4.9 million families received AFDC, encompassing about 14.0 million recipients, more than two-thirds of whom (9.5 million) were children. The average monthly payment per family was $381. Total expenditures for these AFDC benefits exceeded $22.1 billion in 1992, of which the federal share was about $13 million and the states' share was about $9 billion (U.S. Bureau of the Census, 1994) When all federal costs for supporting program clientele are included (AFDC, medicaid, food stamps, and administrative costs), welfare expenditures are approximately 1% of the federal budget (Youth Policy, 1993).

Established in 1935 to help meet the needs of poor children in single-parent households, the AFDC program was originally intended to assist widows in poverty to stay at home to care for their children. Program size and costs grew dramatically in the ensuing decades as single mothers on assistance increasingly were divorced, separated or never married rather than widowed. AFDC caseloads have risen steadily in recent decades, up nearly 83% between 1970 and 1992, representing a constant-dollar increase of over 51% (Martinson, 1994). Despite the steady growth of the program, the majority of clients receive cash assistance for relatively short periods of time. A small fraction of AFDC clientele are long-term recipients, although they account for a significant percentage of the overall costs (Bane & Ellwood, 1983).

Despite these increasing AFDC caseloads, the average cash benefit per family has markedly decreased in constant-dollars since the 1970s, having dropped some 25%. Not surprisingly, these smaller real benefits are able to lift a correspondingly smaller percentage of client families above the poverty line, now estimated to be about 1 in 7 compared to 1 in 5 two decades ago (Youth Policy, 1993). These trends towards increasing caseloads with decreasing real benefits have continued in recent years. In the approximate three years between July 1989 and October 1993, for example, the national AFDC caseload grew 34% from 3.75 million to 5.02 million families (Youth Policy, 1993).

The emerging role of literacy and adult education within the welfare system. It has long been clear that lack of educational credentials and basic skills pose serious barriers to poor families becoming economically self-sufficient. Since at least the 1960s, welfare programs have tried a variety of approaches to assist their clients to develop the basic skills and educational credentials that will enable them to participate in job training and secure employment that provides livable wages and benefits for their families.

After 10-15 years of programmatic experimentation with a variety of such human capital approaches to increasing the employability of welfare clientele, Congress passed the Family Support Act of 1988 which attempted to codify what had been learned through this experimentation. The Job Opportunities and Basic Skills Training Program (JOBS), a central component of the Family Support Act, is based on three interrelated assumptions: (1) AFDC parents are responsible for supporting their families; (2) government is responsible to assist AFDC parents to develop the skills they need to support their families; and (3) strong literacy and basic skills are essential for AFDC parents to successfully make the transition into employment and economic self-sufficiency.

Under the JOBS program, a total of approximately $1 billion in Federal funds is allocated per year to the states on a formula basis according to their number of AFDC recipients. To obtain their full share of federal funds for JOBS, states must meet certain requirements, which include providing matching state funds and serving a minimum percentage of high risk target groups (e.g., long-term AFDC recipients, custodial parents with little education or work experience, and families about to lose their AFDC eligibility).

Literacy education is the centerpiece of most states' JOBS programs. At any given time, more JOBS participants are enrolled in basic education than in any other JOBS activity (Chisman & Woodworth, 1992). According to federal regulations, JOBS programs must target raising participants basic skills to the equivalent of at least an 8.9 grade level. Most states, however, found the federal target skill level unrealistically low for securing jobs paying livable wages. Many opted for the more demanding target of obtaining a General Educational Development (GED) certificate (Chisman & Woodworth, 1992).

Close looks at the ways in which states have implemented the JOBS program (e.g., Chisman & Woodworth, 1992; Friedlander, Riccio & Freedman, 1993) have raised serious questions in some quarters about its effectiveness at moving AFDC clientele from welfare to work. Although there is widespread consensus about the desirability of the Clinton administration's announced intention of "ending welfare as we know it", there is little agreement yet about the detailed shape such welfare reform should take. Among other issues to be resolved is the relative intensity and duration of basic education as a component of a reformed welfare system. The administration favors a plan that involves

> "a two-year time limit on cash assistance and a greater emphasis on 'promoting self-sufficiency through access to education and training.' The goal is to assure that by the end of two years adult recipients of Aid to Families with Dependent Children (AFDC) have the skills, knowledge and resources necessary to achieve self-support and find work in the private sector. Those unable to find private sector jobs will be supported via community service jobs." (National Institute for Literacy, 1994)

The Policy Context for the Research Project

To assist policy makers to consider emerging policy alternatives carefully, it is essential that they are given accurate and useful information about the likely implications of including basic skills training in future welfare programs. Given the public cost and family support implications associated with the alternative proposals being considered, it is surprising that so little is presently known about literacy development and its economic consequences among welfare program clientele. There are several major questions about literacy and welfare that decision-makers need to know. First, what evidence is there that literacy (when education is held constant) is a factor in welfare dependence? Second, to what extent does participation in adult literacy education increase the literacy skills of welfare clients? Third, what are the economic consequences of raising the literacy proficiencies of welfare clients (e.g., its impact on future employment, earnings, poverty and dependency rates)? Existing research on these points is briefly reviewed below.

What evidence links education and literacy problems to welfare clients? Most of the evidence linking education and literacy to welfare dependence is cross-sectional in nature. That is, the evidence compares characteristics of those who do and do not receive public assistance such as AFDC. According to Martinson (1994), about 46% of the AFDC

caseheads do not have a high school diploma or equivalent (compared to 25% of the general adult population no longer in school). Individuals without these secondary credentials are facing an increasingly difficult time finding and maintaining jobs that pay well enough to meet their families' basic needs. Many programs attempt to remedy their clients' lack of educational credentials by either assisting young clients to return to high school or by encouraging clients to prepare for, take and pass the GED tests (Bloom, Fellerath, Long & Wood, 1993; Pauly & Martinson, 1992).

The lack of basic literacy skills is also thought to be significant problem for many AFDC caseheads and their families. Although some welfare analysts have attempted to make sweeping generalizations about the relationship between literacy and welfare dependence without careful analysis (e.g., Marsh, Pollan, McFadden & Price, 1990), Berlin and Sum (1988) have intensively examined the empirical data and have clearly shown that poor basic skills and lack of education are each strongly associated with employment, earnings, poverty and welfare dependence. Although some individual programs and states are beginning to assess the basic skills of their clientele (e.g., Hughes, 1991; Employment Division, 1993), there has been relatively little systematic description of the literacy abilities of the nation's welfare clientele.

The recently completed National Adult Literacy Survey (NALS) offers a more complete picture of the literacy proficiencies of the nation's welfare clientele. The NALS provides detailed information about a random sample of the U.S. adult population ages 16 and older. In addition to background information, the NALS included a functional literacy assessment which asked respondents to perform simulated literacy tasks such as filling in forms, extracting information from printed materials and graphical displays, and locating needed information in text, on maps, and so forth (Kirsch, Jungeblut, Jenkins & Kolstad, 1993). Individuals' literacy proficiencies were estimated as scores on three 0-500 point scales: prose, document and quantitative literacy.

Martinson (1994) and Rickard (1994) have used these NALS data to profile the distinctive literacy abilities of the nation's AFDC population. Martinson, for example, notes that the AFDC population scores about 30 points below the general adult population on each scale, a large difference corresponding to about 1/2 standard deviation[1]. *Youth Policy*

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[1]Both Rickard (1994) and Martinson (1994) present a NALS "AFDC" profile as though the respondents involved were AFDC caseheads. Most of these "AFDC" respondents, however, clearly are *not* AFDC caseheads. NALS respondents were asked on a yes-or-no basis whether "anyone in your household receives AFDC, public assistance or public welfare payments..." (Educational Testing Service, 1991). Receipt of SSI was asked about in the immediately preceding question, so that it presumably was not involved in answers to this question. The group of NALS respondents answering "yes" have a Census-weighted size of about 12 million, which corresponds closely with the *total* number of AFDC recipients at the time (of whom about 2/3 are known to be children under 16 and thus not in the NALS population). Thus only about 1/3 of this group of respondents could be AFDC caseheads. Furthermore, the demographic characteristics of the NALS "AFDC" group differ markedly from those reported elsewhere for AFDC caseheads (e.g., distributions of age, gender, education, employment status). It is likely that siblings, parents, spouses, and other relatives of caseheads are included in the NALS "AFDC" population. How this extended group's literacy profile compares with that of actual AFDC caseheads is uncertain.

(1993), focusing on the literacy needs of younger welfare clients, reports that recipients between the ages of 17 and 21 typically have reading skills below "the 6th grade level". The recently completed National Evaluation of Adult Education, which examined a random national sample of English as a Second Language, Adult Basic Education and Adult Secondary Education programs and students (Development Associates, 1992, 1993), estimated that 19% of students were currently receiving AFDC and/or SSI, and that 40% of the welfare recipients possessed skills below "high school entry level". Marsh et al (1990) administered the *Woodcock-Johnson Psycho-Educational Battery* to a random sample of 106 individuals receiving public assistance in Arkansas. Mean grade level scores reported for the basic skills achievement tests are 5.9 for Reading, 5.8 for Written Language and 5.6 for Math.

Because low educational attainment is generally associated with low levels of literacy proficiency (Kirsch et al, 1993), it is difficult to say, looking at the studies cited above, whether low levels of educational attainment are the major barrier or whether literacy *per se* is also a barrier to self-sufficiency among welfare clientele. This is a matter of considerable practical importance, of course, because many adult literacy programs, in effect, are attempting to raise the adults' literacy proficiencies without necessarily changing their educational attainment.

Figure 1 provides some additional perspective on the joint effects of education and literacy on welfare dependence. The figure is based on our own secondary analysis of the NALS household survey data[2]. The figure displays the estimated percentage of households receiving AFDC or other public cash assistance (excluding SSI) as a joint function of the respondents' educational attainment and assessed literacy proficiency[3]. Three levels of educational attainment are shown, according to the highest credential attained: no credential, a secondary credential (high school diploma or GED certificate), or a post-secondary credential (2 or 4 year college or advanced degree). The five literacy proficiency levels shown are the ones reported by Kirsch et al (1993) and adopted by the National Education Goals Panel for reporting adult literacy proficiency[4]. The bars in the figure do *not* provide information about the frequency of particular combinations of educational attainment and literacy proficiency in the adult population; they indicate the percentage of those having particular combinations of education and literacy who receive cash assistance[5]. Notice that there is no data shown for one particular combination: the

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[2]The incarcerated component of the NALS sample is not included in this analysis for obvious reasons. To simplify interpretation, the data are further limited to individuals satisfying three conditions: (1) not currently enrolled in school, (2) born in the United States; and (3) spoke English before starting school.

[3]Footnote 1 discusses some limitations in interpreting these data.

[4]For simplicity, the three NALS proficiency scales (prose, document, and quantitative) are averaged here; results do not vary substantially with the particular scale utilized. Furthermore, the three scales are so highly intercorrelated that they can be well approximated by a single dimension of literacy proficiency (Reder, 1994a).

[5]Most of these AFDC clients are in fact in the lower levels of educational attainment and literacy proficiency. Of the AFDC population as qualified by Footnotes 1 and 2, 70% are in the lowest two literacy levels, 39% do not have a high school diploma or GED, and 35% are in the two lowest literacy levels *and* do not have either a high school diploma or GED.

lowest educational attainment with the highest level of literacy. The lack of data in the figure does not mean that there is no cash assistance associated with this combination; it means that there are no adults in our society with that little education who have that high a literacy proficiency[6] On the other hand, the near-zero bar in the adjacent cell of the figure -- i.e., those with a secondary credential and the highest literacy level -- means something quite different: Virtually no such individuals receive AFDC or other public assistance.

Inspecting the figure, it is clear that *both* education and literacy appear to influence welfare dependence. At each level of educational attainment in the figure, increasing literacy is associated with decreasing rates of welfare utilization. At the same time, at each given level of literacy proficiency, increased educational attainment is associated with decreasing welfare dependence. Multivariate predictive models for welfare utilization that we have applied to these data, which take into account the effects of additional variables such as age, gender and employment history, confirm that both education and literacy are significantly associated with welfare utilization[7].

Do literacy programs *increase* the basic skills of welfare clients? Although there are innumerable reports that students enrolled in various types of adult literacy programs experience significant learning gains, there are severe methodological problems associated with the ways in which such gains are generally measured (Venezky, Bristow & Sabatini, 1993). In addition, most learning gain data is collected while students are still in an instructional program, typically a pre-test near program entry and a post-test at program completion or exit or after a fixed period of enrollment. Improved performance between the pre-and post-tests often measures phenomena other than basic skill development, such as increased familiarity or recent experience with test-taking, "teaching to the test", and so forth (Metis Associates, 1991; Sticht & Armstrong, 1993; Venezky et al, 1993). Although many studies and program evaluations report learning gains, most are subject to these problems and thus generally provide weak evidence of long-term learning gains among program participants. The recently completed National Evaluation of Adult Education, which attempted to estimate the effects of program participation on learning gains for a random national sample of programs and students, encountered many of these thorny technical problems and may not be able to provide convincing evidence that program participation substantially increases adults' basic skills (Fitzgerald & Young, 1994).

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[6]There are, in fact, a few such individuals in the sample, but not enough to reliably estimate their AFDC rate in the population.

[7]These analyses are not presented here because of the aforementioned uncertainty about the caseholder status of the survey respondents who indicated (someone in) their household received public assistance. See Footnote 1.

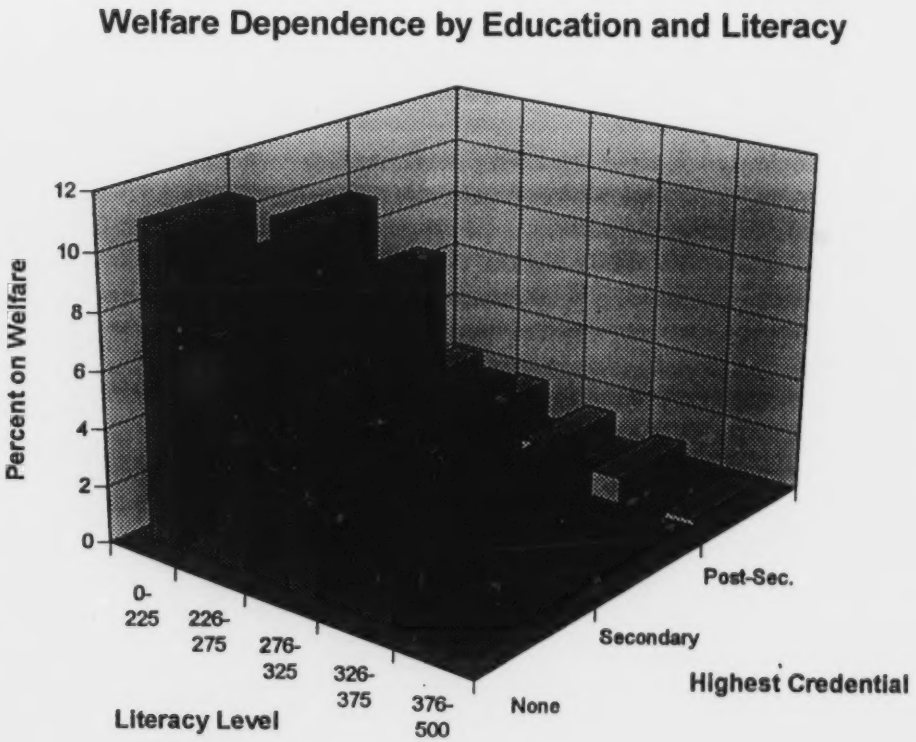

Figure 1. Percentage of households receiving AFDC or other cash welfare by adults' highest educational credential and assessed literacy proficiency. Source: Authors' analysis of National Adult Literacy Survey data. Data are weighted and exclude adults currently enrolled in school, or born outside of the United States or who did not speak English before entering school. See Footnote 1 for cautionary note.

Another approach to studying the literacy development of program participants over time was taken by Martinson and Friedlander (1994) in their evaluation of the educational outcomes of California's Greater Avenues to Independence (GAIN) program (a JOBS program which adds a basic education component to the general welfare-to-work programs). The evaluation of GAIN's educational outcomes was embedded in a larger evaluation study of the cost-effectiveness of GAIN in moving AFDC clients needing basic education from welfare to work. The larger evaluation study used an experimental methodology in which clients deemed in need of basic education were *randomly assigned* to one of two service streams. One group (called the "experimentals") was mandated to participate in a basic education program (GAIN), whereas the other (termed the "controls") entered the general county welfare program.

Clients' literacy proficiency was assessed during program intake with a standardized basic skills test. Clients without a high school education or sufficiently high pre-test scores were identified as needing basic education. Half of these individuals were randomly assigned to GAIN, the remaining half to the general county welfare-to-work program. Two to three years after random assignment, samples of experimentals and controls were paid to participate in a post-test of their basic skills. As expected with such random assignment, the pre-test literacy scores and other background characteristics of the two groups did not differ significantly. Differences observed between the two groups' *post-test* scores are thus presumably attributable to being randomly assigned to the experimental GAIN program. Welfare clientele from five California counties with GAIN programs participated in the evaluation of educational outcomes. Overall, there was no significant difference between the controls' and experimentals' post-test scores, indicating little systematic effect of participation in literacy programs on basic skills development. Although clients assigned to one of the county's GAIN programs who entered with relatively high literacy skills did have significantly higher post-test scores than comparable controls, there is little indication of a broad or consistent effect of instruction across groups of clients or county programs.[8]

There is thus little evidence yet available that convincingly shows that program participation substantially improves adult students' literacy proficiencies. Unfortunately, this is the case regardless of whether the learners are mandatory participants in welfare-to-work programs like GAIN or voluntary participants more typical of the nation's adult literacy programs. At the same time, there is much anecdotal evidence and widespread perceptions among adult literacy students and teachers that literacy development is as easy to find in adult education as it is difficult to detect with standardized tests. This non-alignment of perceived and objectively measured growth in adult literacy continues to perplex and frustrate practitioners and policy makers alike. As will be seen below, many believe this discrepancy exists

[8]Later sections of this report discuss methodological problems that arise in interpreting the GAIN evaluation of educational outcomes, and how these problems limit the conclusions that should be drawn from these findings.

because standardized basic skills assessment instruments and procedures themselves are not aligned with what is taught and learned in adult literacy programs.

What are the economic consequences of raising the literacy proficiencies of welfare clients? Research reviewed above clearly shows that welfare clients have markedly less education and literacy proficiency (even after adjusting for lower education). Although that pattern is certainly consistent with the notion that increasing clients' basic skills might decrease their overall dependence on cash assistance, such a conclusion does not necessarily follow. These correlational relationships do not imply that interventions which raise literacy skills, for example, would thereby reduce future welfare dependency. To establish that conclusion, two things need to be shown. First, it must be shown that some interventions do raise literacy proficiencies (a point which the preceding section stated is not yet soundly established). Second, it needs to be shown that if literacy scores do indeed increase, economic outcomes subsequently improve.

There are very few, if indeed any at all, studies which unequivocally show that changes in assessed literacy abilities lead over time to changes in economic outcomes such as welfare dependence. The GAIN evaluation in principle was to have indicated how program-induced changes in clients' basic skills are associated with their changing patterns of employment, earnings and welfare dependency. Since no overall program-induced effects were found on literacy skills, it is, of course, not feasible to test for subsequent effects on economic outcomes. But other more indirect kinds of evidence are available which suggest that increases in welfare clients' literacy skills can increase their future earnings and thus hopefully decrease their future welfare dependency.

Hughes (1991) reported results of a three-year tracking study of participants in Oregon's *New JOBS* program (the experimental forerunner of many JOBS programs in Oregon, including *Steps to Success*, the program examined later in this report) during the late 1980s. The BASIS, a customized basic skills test, was administered to all clients entering the *New JOBS* program[9]. Their subsequent earnings, derived from SS-matched state unemployment insurance (UI) hour and wage records, were tracked for three years.

Figure 2 displays the average annual earnings for those clients who had at least *some* UI earnings during each of the three tracking years. Clients are grouped in the figure according to their level of BASIS-assessed math skills at program entry. As Hughes (1991) notes, there is relatively little difference in average earnings among the skill-level groups during the first tracking year; with each successive year, earnings of the groups further diverge according to literacy level, with higher skilled clients earning progressively more than lower skilled clients.

Hughes (1991) is careful to point out that these trends do not necessarily reflect program impact on the subsequent employment and earnings of welfare clients[10]. But the data

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[9]More information about the BASIS tests is presented in subsequent sections.

[10]Hughes (1991) points out, for example, that clients may have gone through the New JOBS program at any time during the three year period, so that the tracking years do not necessarily follow the delivery of

certainly do suggest that literacy skills may well affect welfare clients' subsequent employment and economic status. A similar pattern, however, is seen when clients are stratified according to their educational attainment, with the more educated clients showing increasing divergence in earnings across tracking years. Hughes did not attempt to disentangle the effects of education and literacy skills in these data.

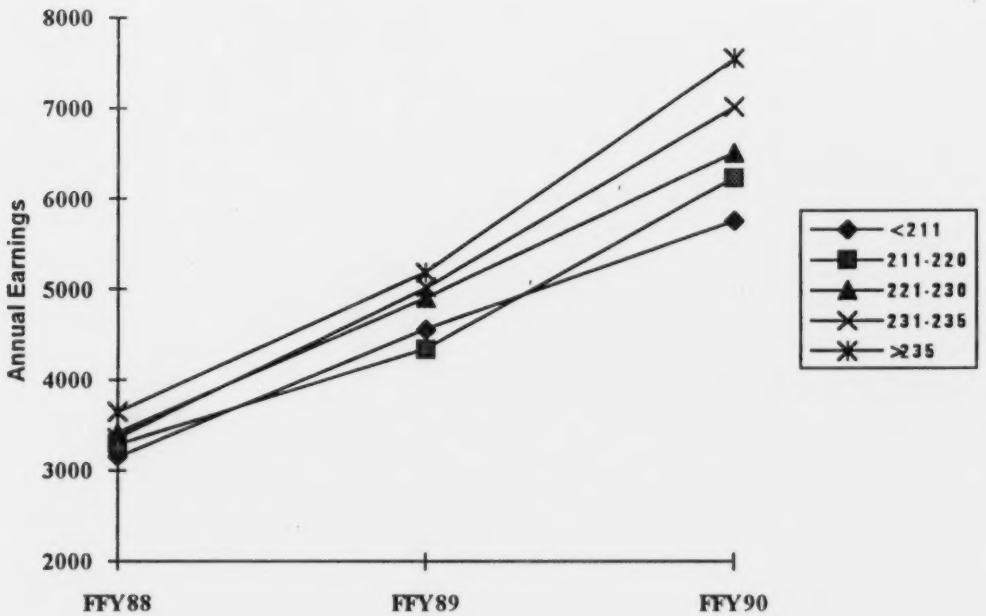

Figure 2. Average earnings for three successive years of Oregon's *New JOBS* clientele, plotted by BASIS Math scores assessed at program entry. Data are for those clients who had *some* UI earnings in each of the three years. Source: Hughes (1991).

Summary: Policy context for the research project. The evidence about the efficacy of mandating welfare clients to participate in basic skills education is thus mixed. There is abundant cross-sectional evidence which suggests that literacy (even with education held constant) is positively related to economic outcomes like employment, earnings, poverty and welfare status (Berlin & Sum, 1988; Kirsch et al, 1993). There is little evidence available, however, that indicates whether participation in adult literacy education leads to sustained increases in skills (i.e., learning gains that remain well after program termination). Methodological problems in most longitudinal studies (including the recently completed National Evaluation of Adult Education) limit the conclusions that can be drawn on this point. The GAIN study suggests that such sustained learning outcomes

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program services. And there is no information about whether clients' assessed literacy skills increased during the tracking period.

may not be widespread when participation is mandatory, although the report's authors (Martinson & Friedlander, 1994) caution that methodological factors may limit the generality of their findings as well. The present study, then, will try to fill in some of the gaps and uncertainties about how program participation leads to literacy development, and how that literacy development in turn impacts clients' future economic success and personal growth.

The Research Project: Literacy Development at *Steps to Success*

Origins of the project. This project grew out of two sources. It was practitioner-initiated in that project staff had been hearing informally from a broad network of adult education practitioners that the Career and Life Planning (CLP) component of the *Steps to Success* program seemed to markedly increase active participation and learning in the adult education courses which followed it. As described in the Dedication and Preface, the second source for the project was the prior work of project staff following a cohort of women as they moved through the CLP course at *Steps* (Wikelund, 1993). Wikelund's work itself grew out of the practitioners' perceptions of CLP's impact on adult education.

The research setting: *Steps to Success.* *Steps to Success* is the largest JOBS program in Oregon. In operation since the fall of 1990, *Steps* serves welfare clients at two primary locations in Multnomah County within the Portland metropolitan area. Like other JOBS programs, *Steps* is a welfare-to-work program which provides a range of services to eligible clients to facilitate their transition to employment and economic self-sufficiency. *Steps* is administered by Mt. Hood Community College under contract with the Oregon Adult and Family Services Division. Its activities are coordinated with those of several state and local agencies, especially those providing employment, vocational rehabilitation, job training and other social services. Wikelund (1993) describes the program in detail.[11]

Welfare clients assigned to *Steps* must be screened by the program unless they have children under the age of one year or are otherwise deferred from active program participation. Depending on a range of factors -- client characteristics and needs identified during intake screening and assessment, program service priorities and the availability of open service "slots" -- *Steps* clients are assigned to one of two service tracks. Clients who are deemed to possess marketable skills are initially assigned to the *Placement Track.* Clients in the Placement Track participate in a customized mix of job training, search and placement activities. Clients whose intake screening and assessment indicate that they needed to enhance their basic literacy skills and/or vocational skills were initially assigned to the *Career and Life Planning (CLP) Track*; after acquiring needed skills in the CLP Track, clients are transferred into the Placement Track.

The intake screening and assessment activities which determined whether clients were assigned to the CLP Track included a one hour background interview and the

[11]Wikelund (1993) used the pseudonym *Pathways to Progress* to refer to the program. Program staff preferred to have the actual name of the program, *Steps to Success*, used in this report.

administration of a secure, standardized basic skills test, the *Basic Adult Skills Inventory System* (BASIS). The BASIS is a competency-based functional literacy test reported on two proficiency scales: Reading and Math. The BASIS is a customized instrument developed by the Comprehensive Adult Student Assessment System (CASAS) specifically for use by Oregon community colleges, employment and social service agencies. (Further details about this instrument are presented below.) Clients generally needed to score 220 or above on the BASIS Reading scale for placement in the CLP Track; it was felt that those with lower scores would not be able to use the written materials involved. To give some idea of how *Steps* practitioners interpret a 220 score, a guideline called the BASIS/CASAS Scale Score Interpretation for Occupational Planning (Office of Community College Services, 1990) specifies that scores between 215 and 230 are "nearly employable", which is explained in the following way:

> Participants functioning between 215 and 230 are able to handle basic literacy tasks and basic computational skills in a functional setting related to employment. A minimum wage job is possible if carefully selected. They have difficulty following more complex sets of directions and are functioning below junior high level. (Office of Community College Services, 1990)

The Career and Life Planning Track. Clients assigned to the CLP Track generally participated first in a Career and Life Planning (CLP) course whose length varied but averaged about 4 weeks (typically 4 days per week). The CLP class involved a mixture of personal counseling and support group activities, detailed basic and vocational skills assessment, and life skills instruction that focused on personal and career goal-setting, building self-esteem, problem solving, assertiveness training, communication skills and other content designed to facilitate the transition to employment and future self-sufficiency. Wikelund (1993) describes the CLP course in detail.

After graduating from the CLP class, clients deemed in need improved basic skills spent a period of time averaging 4 months in participating in literacy training (ABE/GED) available in an on-site center. Depending on their incoming BASIS scores, career goals and training needs, clients either prepared for the GED or attempted to improve and/or "brush up on" targeted basic skills. The average BASIS reading score of clients assigned to the CLP Track has been 242 (Wikelund, 1993), which is in the range at which adults are "functioning at a secondary level and have a high probability of passing the GED with some preparation." (Office of Community College Services, 1990). These ABE/GED training activities were offered in a learning lab environment, with both one-on-one and small group instruction available. Clients were required to participate in these activities a minimum of 15 hours per week.

After completing these basic skills training activities, these CLP clients began participating in a variety of job preparation, search and placement activities.

METHODOLOGY

Two principal research methodologies were used in this study. One was primarily quantitative, attempting to collect follow-up post-test and questionnaire data from a relatively large and statistically representative group of former CLP Track participants. The second methodology was primarily qualitative, attempting to collect richer, in-depth information about program impact and clients' post-program life outcomes from a relatively small and purposively selected group of former CLP Track participants.

These approaches were designed to complement one another, so that, for example, the quantitative analysis of skill development evident in gains between pre- and post-program basic skills tests could be put into a richer and more readily interpretable framework with the perspectives of a cohort of former CLP Track clients with whom a member of the research team had previously developed close rapport and had studied before (Wikelund, 1993). In order to link the two approaches closely, the latter group of clients was also invited to participate in taking the post-test and completing the activities questionnaire (although their test and questionnaire data were analyzed separately and are not reported as part of the overall quantitative data). In this way, the research team could examine the experience of the special cohort in taking the post-test and completing the questionnaire, giving in-depth insight about the test-taking process itself as well as about the perceived impact of *Steps to Success* on their lives.

Quantitative Component

Project staff worked closely with staff from *Steps* and the Office of Community College Services to design and implement the quantitative component. At planning meetings, issues and procedures were examined for identifying and contacting targeted program clients; scheduling a range of convenient times and locations for group administration of tests and questionnaires; administering the basic skills test and questionnaires; compensating individuals for taking the test and completing the questionnaire; quality control processes for collecting, scanning and data processing information on the standardized test answer sheets and questionnaire forms.

The Mailing List: Target Participants. From agency databases, a list was constructed of *Steps* clients who had participated in an assigned ABE/GED instructional component. As described in the previous section, this group does not include all *Steps* clients, since many are not assigned to the CLP Track. In all, records of 920 appropriate *Steps* clients were entered into the initial project database. These records included: names and addresses for mailing invitations to participate in the study; demographic information from client records (age, gender, educational status, race/ethnicity); BASIS test scores from their intake assessment; and the status and duration of assigned *Steps to Success* program activities (including but not limited to the ABE/GED component mentioned above).

The original design of the project envisioned comparisons of the literacy skill gains and life outcomes of those clients who took a Career and Life Planning (CLP) component prior to

taking an ABE/GED component with the outcomes of those who took the ABE/GED component but not the front-loaded CLP. In building and using the aforementioned database, however, it became clear that contrary to early indications, there were in fact very few clients who had taken ABE/GED without having first taken the CLP component. Unfortunately, it was therefore not feasible to make the planned comparison between clients who had and had not participated in CLP before taking the *Steps* basic skills training.

First mailing. Letters to prospective study participants were mailed in mid-March, 1993 to all targeted *Steps* "graduates" who had left *Steps* between 1 and 3 years prior to the mailing (with a median of 24 months). The form letter explained the purpose of the study and offered participants a choice of numerous 1-1/2 hour group sessions for coming in to take a basic skills test and complete a brief questionnaire. A stipend of $25 was offered to offset incidental expenses such as transportation and childcare and to motivate participation. Eighteen sessions were offered during April, 1993, at a range of times of day and days of the week (weekdays, weekday evenings and Saturdays) and at one of three locations spread across the *Steps* service area. Individuals who were interested in participating returned a postpaid reply card, indicating which session(s) they would like to attend. Confirmation cards were mailed to these individuals, which served as a ticket to a given session (quality control and stipending procedures precluded the acceptance of walk-ins). Copies of the letter, enclosure and reply card are contained in Appendix B.

Second mailing. A second letter was mailed in late May, 1993, after sessions initiated by the first mailing had been completed. The second letter was accompanied by the same postpaid, self-addressed reply card enclosed with the first letter. The second mailing went to individuals on the original list who had not yet participated in the testing and whose first letter had not been returned by the post office as undeliverable. The second letter offered a choice of 6 additional sessions at three locations in June, 1993. A copy of the second letter is contained in Appendix B.

Basic Skills Pre-Test. The pre-test scores used were the previously described BASIS Reading and Math scores from the clients' intake assessments. As noted above, the BASIS is a secure, competency based functional literacy assessment instrument developed by CASAS expressly for use by educational, employment and social service agencies in Oregon. The customized BASIS tests are derived from CASAS Rasch-scaled item banks, and are comparable with CASAS tests being used in other JOBS programs and adult education programs across the country. CASAS-scaled basic skills tests are presently being used in statewide JOBS programs in five states (CA, CT, KS, NC, OR) and locally in some JOBS programs in at least six other states (CO, ID, IN, MD, MI, & WA). Within Oregon, the BASIS is being used extensively by a range of adult service providers, including 11 of the state's 16 community colleges as well as in programs operated by the Corrections, JTPA, Adult and Family Services, Displaced Workers Program, Employment Division and other state agencies.

Appendix C provides more detailed information about the BASIS test and the interpretation of the CASAS scale scores that it reports. Here is an overview of how BASIS/CASAS scores are interpreted and used within *Steps*:

- Level A: < 200: difficulty with basic literacy & computation needed to function in workplace & community
- Level B: 200-215: low literacy skills, making it difficult for all but entry-level employment
- Level C: 216-230: has basic skills needed for basic functional tasks related to employment
- Level D: 231-235: (Pre-GED) - could benefit from preliminary GED preparation
- GED: 236+ : Functions at secondary level - high probability of passing the GED with some preparation

According to the multi-agency statewide BASIS database, the average BASIS score of Oregon adults reporting an 8th grade education is 235 for Reading and 213 for Math (Employment Division, 1993).

Basic Skills Post-Test. The CASAS Levels Reading and Math (Level C) were selected as the most appropriate instruments to use for post-testing purposes in this study. The BASIS and CASAS tests are built from the same bank of test items, commonly scaled according to one parameter Item Response Theory (one scale for Reading, another for Math). Standard CASAS test booklets (Form 37R for Reading; Form 35M for Math) and scannable answer sheets were utilized.

Test Administrators. Three staff from *Steps to Success*, previously trained and certified to give BASIS tests, were hired to administer the scheduled CASAS testing/questionnaire sessions. One Test Administrator was assigned to each given session. Test Administrators were trained to utilize the test administration procedures described below. Test administrators were also debriefed by project staff after the completion of the final testing session. The debriefing focused on their perceptions of the reactions of *Steps* graduates to taking the basic skills test, significant comments they heard from participants, and related matters.

Test Administration Procedures. The written procedures and instructions for administering the testing/questionnaire sessions are listed in Appendix B. Essentially, project staff prepared advance rosters of participants for each scheduled session, and used couriers to send the requisite materials to each session (a quality control sheet and participant roster, test booklets and answer sheets, pens, pencils and questionnaires, stipend receipts and stipend checks) to the administrator, who would return the completed control sheets, signed receipts, answer sheets and questionnaires to project staff.

Sessions averaged about 1-3/4 hours in length, and included the administration of the CASAS Level C Reading (Form 37R) and Math (Form 35M) tests, completion of the

questionnaire and stipend receipt form. Forty minutes were allowed for each test[12]. A 5-10 minute break was allowed between the two test taking periods. The remainder of the session was devoted to general instructions, completing the written questionnaire and stipend receipt, and to distributing the stipend checks.

Questionnaire. A brief written questionnaire was developed for use in the sessions that gathered information about participants' activities and perceptions, including: (1) current educational and employment status; (2) additional education and training taken since leaving *Steps;* (3) retrospective assessment of how participating in *Steps* had helped them in various areas of their lives; (4) whether (and if so, how) *Steps* might have better prepared them; and (4) perceptions of improvements if any in their basic skills. The specific areas in which participants were queried about whether *Steps* had "made a difference" in their lives were taken from the program's own goals or were areas which Wikelund's (1993) cohort had indicated were relevant to their social and economic well-being: getting a job; becoming self-sufficient; gaining control over their own lives; and being able to assist their children. Participants were asked to rate (on a three-point scale) the extent to which their basic skills had improved in reading, math, and writing. A copy of the questionnaire is in Appendix D.

Response to the mailing and turnout for the testing and questionnaire sessions. Letters were mailed to the targeted 920 former *Steps to Success* clients. The post office returned 109 of these 920 letters as undeliverable. Of the remaining 811 individuals whose letters had not been returned by the post office, 229 contacted the project office to sign up for a session, an effective response rate of 27%. Since the actual number of "dead letters" in the mailing (i.e., those that were not forwarded to or received by the intended recipient) was probably much higher than the 109 officially returned by the post office, the effective response rate was also very likely much higher than 27%. Considering that some individuals had left *Steps* more than 3 years before the mailing, the overall response rate to the invitational mailing seems quite satisfactory.

Even though individuals preregistered for specific sessions, and received confirmation notices of their registration as reminders, there was a high rate (averaging about 40%) of no shows at the sessions. Many of these individuals recontacted the project office, often with accounts of how child care, employment or transportation problems prevented them from attending the designated session[13]. Individuals were permitted to reschedule and participate in subsequent sessions. Many did so.

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[12]The CASAS Level tests were designed for hour-long test periods rather than the 40 minutes allowed in this study. It was not feasible to increase the length of the sessions to accommodate these longer periods. However, inspection of the completed answer sheets and debriefing sessions with the test administrators and the focus group indicated that very few if any participants found the time allotted to be problematical.

[13]Interestingly, the problems adults experienced in trying to participate in these activities are very reminiscent of those experienced more generally by adults trying to participate in adult basic education (Beder & Valentine, 1990; Wikelund, Reder & Hart-Landsberg, 1992).

A total of 163 of the 229 individuals who contacted the project office appeared for a scheduled testing and questionnaire session. Of those 163 participants, 112 (69%) chose sessions held on weekends or weekday evenings, and 51 (31%) participated in weekday daytime sessions.

"Hard" outcomes. Two "hard" outcome measures were supplied by agency staff for each of the 163 individuals who completed the testing and questionnaire: (1) A binary indicator of whether the individual received cash assistance (AFDC) in Oregon during July 1994; and (2) the individual's earnings reported by employers for unemployment insurance (UI) purposes[14] for the quarter in which the testing took place (i.e., the 2nd quarter of 1993).

Data Processing. All CASAS Reading and Math answer sheets -- on which project staff had precoded session identifiers and booklet form numbers as quality control steps -- were delivered to a local community college for optical scanning, scoring and scaling with the use of CASAS scoring software. Results were returned on diskette. Questionnaire data were entered directly into machine readable files for processing. Unique client identifiers were used to merge results from the optically scanned and scored test data, questionnaire data and *Steps to Success* client information files. Further data processing and statistical analyses were conducted with SPSS for Windows, Version 6.1.

Qualitative Component

The longitudinal cohort. The qualitative component of the research consisted of several information gathering activities. Most of these research activities were grounded in the ongoing informal contacts between a member of the research team and a cohort of previous *Steps* clients who were involved in her ongoing research (Wikelund, 1993). The original contact with the cohort of 27 women occurred in an intensive four-week CLP class at *Steps*, in which the researcher was an active participant-observer along with these 27 women. Fifteen of the 27 women were subsequently involved in in-depth ongoing research as they continued through and eventually graduated from *Steps*. The characteristics and previous experiences of these women have been described in detail elsewhere (Wikelund, 1993).

Cohort post-tests and questionnaires. Although informal contacts with the cohort provided rich information about their ongoing lives -- including changes in their welfare, employment and family status -- information was needed which would help link the experiences and life outcomes of the cohort to the information supplied by the study participants through the post-tests and questionnaires. To establish a base of information common to the cohort and the participants in the quantitative study, cohort members were also invited to participate in the post-test and questionnaire activities.

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[14]Based on wages and hours reported by employers for state unemployment insurance purposes. According to Hughes (1991), approximately 90% of Oregon jobs are covered by this system. Military employment, self-employment and out-of-state employment are not included.

Cohort members were contacted by mail and offered the chance to participate in the follow-up testing and questionnaire activities much in the same way as other former clients of *Steps*. They were invited to come to a specific testing and questionnaire session. Only cohort members were invited to this particular session (i.e., it was not available to other study participants). The same testing and questionnaire administration procedures were used (in fact, the test administrator assigned to the session was not told that this was a "special" session).

The cohort focus group meeting. Following the testing and questionnaire session cohort members participated in an informal focus group session to discuss their experience and perceptions of taking basic skills test and completing the questionnaire. Their close rapport they had with a member of the research team was thought to be an excellent context for this discussion to expand into a richer discourse about the successes and challenges they had encountered in their ongoing lives and attempts to transition successfully into self-sufficiency. Immediately following their testing and questionnaire session (which was held on a Saturday morning), an informal luncheon "reunion party" (they had not been together en masse since leaving *Steps* more about a year before) was held next to the testing room, Members of the research team facilitated the ensuing semi-structured but energetic and free-wheeling discussion. The group provided very rich descriptions and insights about the process of taking the test and completing the questionnaire. Many valuable comments were contributed about how the information collected by such standardized tests and questionnaires does and does not reflect what they had learned in *Steps* and the impact they felt *Steps* had had on their lives.

Cohort participation in the testing, questionnaire and focus group activities. Twelve women from the cohort participated in the testing and questionnaire session and the ensuing "focus group" luncheon. As planned, their test results and questionnaire data are *not* included in the quantitative results presented in this report[15]. By participating in the test-taking and questionnaire-completing activities, these cohort members were "primed" to participate in the immediately following focus group discussion about the testing and survey questionnaire processes and the related issues about their continuing experiences with basic skills and education as they impacted their lives in general. Although their post-test scores and questionnaire responses are not included in the larger sample being analyzed here, the plan was to use these supplementary data in assembling a qualitative profile of the cohort, updating Wikelund's (1993) initial profile.

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[15]For several reasons, it was decided in advance not to include their test scores and questionnaire responses in the quantitative study. First, despite efforts to treat cohort members in much the same way as other study participants in terms of recruitment and administrative procedures (e.g., soliciting their participation by mail, offering the same stipend), the extensive prior contact of the cohort with project staff created a distinct context for their engagement in these follow-up activities. Furthermore, the cohort members had gone through the CLP Track of *Steps to Success* more recently than any of the target study participants.

Debriefing meeting with the testing & questionnaire session administrators. After all testing/questionnaire sessions had been completed, in-depth discussions were held with each of the three staff administrators. These highly informal discussions were conducted both individually and as a group. The content of the discussions ranged widely, but focused mainly on: (1) the administrators' perceptions, impressions or comments about the testing and questionnaire activities; (2) which "kinds of" former clients tended to participate in these activities; and (3) anecdotal accounts of participant comments, reactions or attitudes towards the tests, the questionnaire, *Steps to Success*, and so forth.

Ethnographic research with the cohort. Ongoing contacts, informal interviews and other qualitative research activities were also taking place with the cohort members on an individual basis, so as to maintain an up-to-date profile of how their lives were progressing and how their basic skills were developing in relation to the challenges and opportunities they confronted. The basic skills post-test scores and questionnaire data were to be included in this updated profile of the cohort. Unfortunately, as described in the Preface and Dedication to this report, these rich and invaluable research activities could not be completed or brought to closure because of the untimely illness and death of Karen Wikelund.

Workshop presentations to staff from *Steps to Success* and other JOBS and adult education programs. A workshop was developed for presentation to staff of several types of adult literacy programs. The hour-long workshop was presented several times during the course of the project: to an all staff meeting at *Steps to Success*; to a meeting of all JOBS program managers in the region; and to a meeting of all Adult Basic Education Directors from community colleges across the state. Each audience consisted of about 25 individuals, and provided very lively feedback and discussion regarding the findings of the study and their implications for literacy education in other programs. Their comments and suggestions helped guide the interpretation of the study's results in much the same way as other study participants in terms of recruitment and administrative procedures.

RESULTS

Characteristics of Study Participants

Statewide, countywide and target program client characteristics. As noted in the foregoing Methodology section, the target population for the study consisted of all *Steps to Success* clients who completed a basic skills education component within *Steps*. To see how this target population compares with other welfare client populations in the state, its characteristics can be compared with those of two other populations: (1) all welfare clients in the state of Oregon; and (2) all welfare clients in Multnomah County (where *Steps* operates). Selected characteristics of these three groups are displayed in Table 1. Data in the table are drawn from the Oregon statewide BASIS database as of April 1993 (Employment Division, 1993). Information about *Steps* clients activities (upon which the targeting was based) are drawn from the *Steps* local JOBS Automated System (JAS) database.

TABLE 1

Selected Characteristics of Welfare Clients in Statewide, Countywide and Target Program Populations

Characteristic	State Welfare Clients	County Welfare Clients	*Steps* ABE/GED Clients
N	27555	6678	920
% Women	76.2	81.2	93.0
% Minority	19.3	35.1	21.1
Age*	29.5	30.0	29.5
Years of schooling	10.9	10.9	10.7
BASIS Reading Score	242.1	240.7	239.9
BASIS Math Score	223.4	221.1	217.7

*Age is reported in subranges (e.g., 18-20, 21-24) in the statewide BASIS database. The mean ages listed are estimated from the distributions of the age categories.

Note that there is an inclusive relationship among these populations. The statewide database of welfare clients, of course, includes those from Multnomah County, which in turn includes all of the *Steps to Success* clients. The table indicates that these three populations differ to a certain extent in terms of their demographic composition and overall BASIS-assessed literacy abilities[16]. Although more than three quarters of the

[16]Statistical tests of differences among these groups' characteristics are not performed here, since there is no particular interest or meaning associated with the outcome of these comparisons. There is little reason to suppose, for example, that welfare clients in the most populous and urban county in the state would be representative of the state's welfare population as a whole. Similarly, the selective screening involved in

welfare clientele in the state database are women, the proportion of female clients is somewhat higher for Multnomah County and is substantially higher for the basic education clients in *Steps to Success* (93% of whom are women). The preponderance of women in the *Steps* CLP Track is a direct reflection of the program's design and service priorities. Multnomah County, Oregon's most urban and demographically diverse county, has a substantially larger percentage of minority welfare clients than does the state as a whole. The proportion of minority clients participating in the basic educational services offered by *Steps to Success* is considerably lower than that of Multnomah County's overall welfare clientele. Presumably one major reason for this is that *Steps* primary location for service delivery is relatively distant from the neighborhoods where many minority clientele live[17]. Neither age nor years of schooling appears to differ appreciably among the three groups. Welfare clients' average BASIS reading and math scores are lower in Multnomah County than in the state as a whole, and still lower among the *Steps* clients assigned to the basic education activities. Given the screening and selectivity (which includes consideration of BASIS test scores) that goes into assigning *Steps* clients to the CLP Track, it is not surprising that their BASIS scores would differ appreciably from those of the overall county welfare clientele.

Target population and realized sample. As described above, the realized sample of 163 study participants volunteered to take part in the follow-up testing and questionnaire sessions. They responded to a mailing that offered a financial incentive to participate, which was sent to all previous *Steps* clients who had participated in an assigned ABE/GED activity. Table 2 compares the characteristics of the 163 study participants (the realized sample) with those of the remaining 757 members of the target population who did not participate in the study. (Note that the two groups together are the same as the group of 920 target *Steps* clients displayed in the Table 1 above.)

Independent-samples t-tests were carried out to compare the characteristics of these study participants and non-participants. The resulting t-values and p-values from these tests are shown in the table. The p-value shown is the probability of observing the sample t-value under the null hypothesis that there is no difference between the two groups. At the .05 significance level or beyond, all differences between the groups are statistically significant with the exceptions of (1) how long ago clients went through the CLP component at *Steps*, and (2) the marginal exception of years of schooling[18]. There is a higher proportion of women and a lower proportion of minorities in the realized sample than in the target

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assigning *Steps* clients to particular service tracks such as CLP/basic education itself should generate specialized distributions of client characteristics (Wikelund, 1993).

[17]There is a smaller *Steps* facility that is located closer to minority clientele. But other factors may also be involved in the low minority participation rate in the basic educational services provided by *Steps to Success*.

[18]Before conducting a given t-test, a preliminary Levene test was carried out to determine if the variances of the two groups are equal. The probability that the two variances are *not* equal given the sample data is shown in the rightmost column of Table 2. If the variances of the two groups were significantly different at the .05 level, then the t-test results shown in the table were predicated on the two distributions having different variances (this happened only for two variables: Years of schooling and the BASIS Reading Score). Otherwise, the t-test was carried out assuming the two groups had homogeneous variances.

population for the study. Almost all (97.6%) study participants are women, and 12.9% are members of minority groups. Because of the small size of the realized sample (N=163), it will not be possible to consider the results of the study separately by gender or minority status. Study participants were also about 2 years older (31 vs. 29) than non-participants and had BASIS scores 4 to 5 points higher than the non-participants, even

TABLE 2
Selected Characteristics of Study Participants and Non-Participants

Characteristic	Non-Participants	Study Participants	t-value	p-value	Levene equal-variance test
N	757	163			
% Women	91.9	97.6	3.55	.000	.000
% Minority	21.1	12.9	2.73	.007	.000
Age	29.1	31.3	3.74	.000	.027
Years of Schooling	10.7	11.0	1.92	.055	.067
BASIS Reading Score	239.1	243.7	4.65	.000	.527
BASIS Math Score	217.0	221.1	4.05	.000	.031
Months since CLP entry*	23.0	23.8	1.61	.109	.350

*Months since assignment to Career & Life Planning track of *Steps to Success* (as of May 1993)

though the years of schooling did not differ significantly between the two groups. There may well have been effects of gender, age, minority status and skill-level in the self-selection of study participants from the target population. It is possible, for example, that individuals who do not score well on tests are more test-averse and were less likely to volunteer to participate in the study when presented the opportunity to do so. It is also possible that individuals' employment status and/or welfare status at the time participants were being recruited affected their schedules and resources in ways that made them more or less likely to participate. Such questions, of course, must be addressed when we consider the results of the study and ask how they might generalize from those participating in the study to the larger population of welfare clients. So we will return to these questions after presenting the results for the study participants.

Learning Gains

Issues in comparing pre- and post-test scores. Although both the BASIS instruments (used as pre-tests in this study) and CASAS Level Tests (used as post-tests for this study) measure math and reading proficiencies on the same IRT-calibrated scale, some technical problems arose in trying to compare their scores to assess the learning gains made by *Steps* clients. The BASIS tests were designed for use as screening instruments, measuring proficiencies over a relatively narrow "accurate range" (i.e., the range of scores which can

be imputed with relatively low standard errors)[19]. The CASAS Level C tests used in the study have broader accurate ranges. The relatively narrow accurate range of the pre-tests proved to be more of a practical problem with the reading test than with the math test, because most of the study participants actually tested outside of the designated accurate range of the BASIS Reading test, whereas most scored within the accurate range of the BASIS Math test. One technique suggested by CASAS for comparing scores in such circumstances is to eliminate individuals from the analysis who scored outside of the accurate range on either the pre- or post-test. Only 53 of the 163 individuals tested scored inside the accurate ranges of the Reading tests, a number too small to utilize for purposes of many of the statistical tests and relationships to be examined.

Before leaving the reading score data, however, it should be noted that they do show clear evidence of overall learning gains. The reading scores of these 53 individuals average 231.3 on the pre-test and 235.5 on the post-test, for an average gain of 4.2 scale points. A paired samples t-test indicates this gain to be significantly non-zero: $t = 4.54$, $p < .001$. Of the 53 individuals, 37 showed individual learning gains, 3 no difference, and 13 exhibited negative gains. The median reading gain was 4.0 CASAS scale points.

The math test scores present fewer technical problems to work with than the reading scores. Most (127/163) individuals scored in the accurate range of both the pre-test and post-test. Although the standard error of estimating an individual's proficiency is larger when outside of the instrument's accurate range, it is still preferable here to work with the entire sample in order to have a larger N for multivariate analyses involving test scores and other individual characteristics. As a check on whether including these outlying scores significantly biases the resulting learning gain outcomes, initial analyses were conducted with both the entire group of 163 individuals as well as with the subgroup of 127 falling within the accurate range. Table 3 displays summary statistics for the scores and math learning gains of the two groups.

Table 3
Math Learning Gains

Sample	N	Pre-Test	Post-Test	Gain	t	p	Gains > 0	Gains = 0	Gains < 0
Entire group	163	221.1	229.0	7.9	11.1	.0001	135	5	23
"Accurate range"	127	217.9	226.7	8.8	13.7	.0001	113	5	9

Results for the entire sample and the subsample falling within the accurate range are shown in the bottom two rows of the table. Overall results appear quite similar for the two samples, although scores are lower for the entire group because more individuals scored below the accurate range than above it. The important point to note, however, is

[19]Thanks to Dr. Patricia Rickard of CASAS for providing additional technical information about using and interpreting the BASIS and CASAS tests used in this study.

that each group has a large learning gain, averaging about 8 scale points for the entire group or 9 scale points for the subgroup. In either sample, a paired t-test comparing pre-test and post-test scores is statistically significant at the .0001 level or better. As the rightmost three columns of the table show, the vast majority of individuals experienced positive learning gains using either sample.

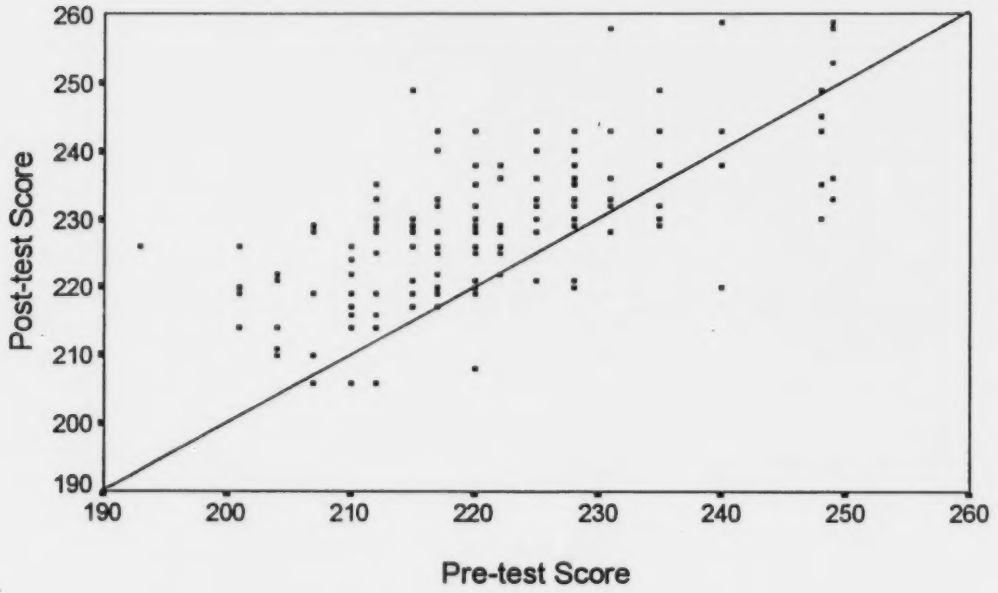

Figure 3. Relationship between math pre-test (BASIS) and post-test (CASAS Level C) scores. Each point represents an individual; heavier points represent the coincidence of multiple individuals. Points above and below the diagonal line represent positive and negative learning gains, respectively. Pearson correlation between pre-test and post-test is .65 (N=163).

Figure 3 displays the relationship between individuals' pre- and post-test math scores. Each point represents an individual. Heavier points represent the coincidence of two or more individuals. The diagonal line represents equal performance on the two tests. Points above the diagonal line represent positive learning gains, whereas those below the line represent negative gains. As noted above in Table 3, the vast majority of these *Steps* clients experienced positive learning gains. This figure indicates that these positive learning gains occurred throughout the proficiency scale; clients coming into *Steps* at a broad range of proficiencies benefited from the program and increased their math skills.

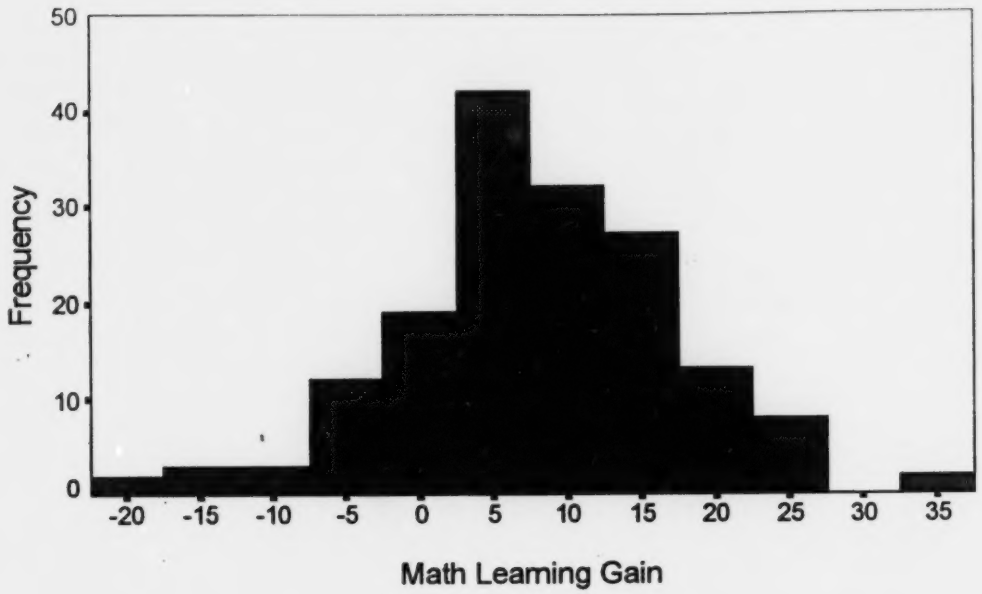

Figure 4. Frequency histogram of math learning gains for the 163 study participants. Gains are expressed in CASAS scale points.

Figure 4 shows a frequency histogram of these math learning gains. Most of the distribution is centered to the right of zero, since nearly all individuals exhibited positive gains. Although it was noted above that these already impressive gains are slightly larger in the subgroup scoring within the accurate range of the tests, data from the entire group of 163 participants will be used in subsequent analyses[20].

Features of learning gains. There are several noteworthy features of these learning gains. First, in terms of their size, the reading gains (averaging 4 CASAS scale points) are typical of the CASAS gains reported between pre-test and post-tests given at program entry and exit. The math learning gains (averaging 8 scale points) are somewhat larger than those typically reported in the usual pre- and post-test comparisons within adult basic education programs (California Adult Student Assessment System, 1993a; Development Associates, 1994; Fitzgerald & Young, 1994; Iowa Department of Education, 1994; Office of Community College Services, 1994; Sticht & Armstrong, 1993). That the *Steps* clients' math gains are larger than their reading gains may well reflect their lower entering skill levels in math and the broad perception among *Steps* intake counselors and adult education teachers a greater need for improving clients' math skills. Teachers reported

[20]Although not included in the analyses, it should be noted that among the 12 women from Wikelund's (1993) cohort who partiicpated in the testing, the average gain in math scores was 10.4 points; 11 of the 12 achieved individual gains, and 1 had the same pre- and post-test scores.

placing more emphasis on improving math skills, often appealing to the close linkage of math skills to the workplace[21].

The average math pre-test and post-test scores (see Table 3) correspond in Oregon adult education norms to grade levels of 10.0 and 12.3, respectively (Employment Division, 1993). Among statewide welfare clientele, the corresponding grade level equivalents are 9.9 and 12.4, respectively[22]. Thus these math gains, which span about 2-1/2 grade level equivalents, bring the average math skills of the *Steps* clientele above the level of those with high school diplomas[23]. Gains of this magnitude are well beyond those typically found in careful studies of pre- and post-test scores in basic skills programs, regardless of the duration of instruction or the types of assessment instruments used (Sticht & Armstrong, 1993).

A second noteworthy feature of these data is that they represent *sustained learning gains*. Most learning gain data is collected while students are in an instructional program, typically a pre-test at program entry and a post-test at program completion or exit or after a fixed period of enrollment. Collected in this way, an improvement in performance between the pre-and post-tests often measures phenomena other than learning, such as increased familiarity or recent experience with test-taking, "teaching to the test", and so forth (Metis Associates, 1991; Venezky et al, 1993). The learning gain data from this study, on the other hand, are based on post-tests conducted approximately one to three years *after* exiting the instructional program. Not only are the math gains larger than usual, they are *sustained* learning gains.

Related to the feature of sustained learning gains is the important question of *retention of learning* (Wagner, 1994). Clearly the sustained gains evident here represent a considerable retention of skills and knowledge learned. But to what extent has some of was originally learned in the program faded with the passage of time since exiting the program? To examine these possible retention effects, we examined the relationship between the elapsed time since completing *Steps* (based on computerized client records) and the learning gain. There was no statistically significant correlation between the two ($r = -.123$, $n = 151$, $p = .131$). The negative sign of the correlation coefficient indicates that, as expected, smaller gains are associated with increasing time between the end of the basic skills instruction and the post-test. But the effect is insubstantial and is not statistically significant.

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[21]Although Wikelund directly observed a greater emphasis on math in the *Steps* class she observed, no direct observation was made of the classes which these study participants went through. The *Steps* program staff reported a greater emphasis on math consistently throughout the life of the program.

[22]These grade level equivalents are based on analysis of Oregon statewide BASIS database of 68,399 clients tested by seven major state agencies or programs providing or referring to adult basic education services: Adult and Family Services (including JOBS), Alternate Schools, Department of Corrections, Dislocated Worker Program, Employment Division, Office of Community College Services, and Job Training Partnership Act.

[23]The comparison with those holding high school diplomas, of course, is limited to clients of the state agencies identified in the previous footnote. Comparable data are not available for a representative sample of high school graduates within the general state adult population.

A final feature of the learning gain data concerns the relationship of learning gain to the amount of basic skills instruction provided by *Steps*. The *Steps* database did not record the amount of instruction individuals received, merely the duration in calendar days during which an activity such as adult basic education was officially "active" in the client's case management records. In practice, this elapsed time proved to be a poor indicator of the amount of instruction received. So study participants were asked on the questionnaire to estimate the number of weeks of basic skills instruction they received in *Steps* (along with the number of days per week and the number of hours per day)[24]. The number of weeks of instruction was correlated with the assessed math learning gain. A statistically reliable, but weak positive correlation is found between the two ($r = .243$, $n = 111$, $p = .01$)

GED Attainment

A frequent goal in adult education for those who do not have a traditional high school diploma is attaining an alternative credential, such as the GED certificate. GED attainment is also a common objective in JOBS programs for those whose entering basic skill levels indicate they might be able to prepare for and pass the GED Tests within a relatively short period of time (Martinson & Friedlander, 1994). In the California GAIN Project, for example, GED attainment is one of two targeted outcomes for clients' basic education (the other being increased literacy skills). The GAIN educational evaluation found program-enhanced rates of GED attainment to be much more widespread than program-enhanced increases in basic skills (Martinson & Friedlander, 1994). That pattern is consistent with the fact that GED attainment frequently may represent the certification of skills that adults already possess rather than the enhancement of their skill levels *per se* (Kaplan & Venezky, 1993). A detailed study of GED recipients in Oregon found (for a random sample of the state's adult population) that GED attainment appears to involve a mixture of skill certification and skill enhancement effects (Reder, 1994b).

Of the 79 study participants who entered *Steps* without a high school diploma or equivalent, 28% (22 individuals) subsequently received a GED certificate during the follow-up period. This GED attainment rate is much higher than the rates Martinson and Friedlander (1994) report in their evaluation study of the educational outcomes of California's GAIN program. The overall GED (or high school diploma) attainment rate for those assigned at random to the various GAIN programs was 9% during a comparable follow-up period[25]. The *Steps* program thus appears quite effective in assisting clients to attain GED credentials.

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[24]There were numerous missing data on the questionnaires regarding the duration of the basic skills instruction, especially from those individuals who exited the program 2-3 years earlier. The test administrators and members of the cohort focus group reported that many participants encountered difficulties recalling details about when various activities began, ended or how long they lasted. The validity of the date and duration responses in the questionnaires is therefore uncertain.

[25]This comparison is problematical on any number of grounds. First, the entering CASAS-scaled skill levels of participants in the basic education programs were not parallel between GAIN and *Steps*.. Although their math scores were relatively comparable, the reading scores of *Steps* participants were

Questionnaire Data

Each of the 163 participants in the follow-up testing completed the brief written questionnaire. The questionnaire collected information about participants' educational attainment (which served as an update to the educational status information provided at program entry), current employment status and any education and/or training received after leaving *Steps*. The questionnaire also probed participants' retrospective perceptions of *Steps*: Whether and how it impacted various aspects of their lives (e.g., finding work; helping their children; becoming more self-sufficient; attaining a sense of control over their lives); whether and how *Steps* could be improved; and the extent to which they felt their participation in *Steps* improved their basic skills (math, reading, writing).

Perceived program impacts. Figure 5 displays the percentage of participants who reported that Steps helped them to improve various aspects of their lives.

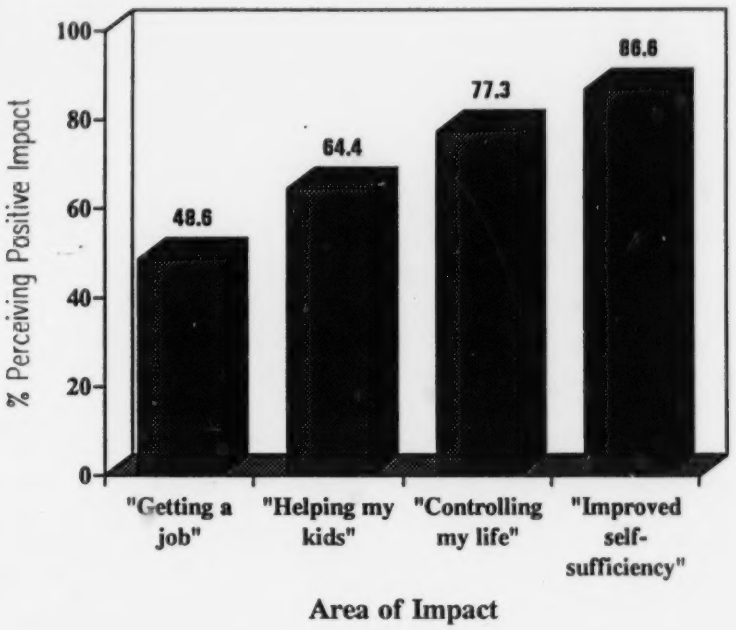

Figure 5. Participants' perceptions of program impact.

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substantially higher, so that less additional skill growth should be needed for GED attainment. Indeed, Martinson and Friedlander (1994) reported that the entering skill levels of GAIN clients had a significant impact on their rate of subsequent credential receipt. Second, as discussed in greater detail below, the "experimentals" who were randomly assigned to GAIN included a mix of actual participants and non-participants in GAIN's "mandated" educational programs. It is thus quite likely that the 9% figure underestimates the GED attainment rate for actual program *participants*.

Participants' retrospective assessment of whether *Steps to Success* "made a difference" in their lives varies with the intended program impact. Although most participants (87%) felt that the program increased their self-sufficiency, slightly less than half (49%) perceived the program to have helped them find work. More than three-quarters (77%) reported that *Steps* made a difference in "controlling my life", and nearly two-thirds (64%) felt it had helped them to assist their own children.

Employment and earnings. More than one in three (38%) of the study participants reported being employed on the questionnaire, of whom 57% reported working full-time and 43% part-time. The corresponding "hard data" for employment is highly consistent with this self-reported data. Overall, 48% of the participants had *some* earnings reported for unemployment insurance (UI) purposes during the 2nd quarter of 1993 (i.e., the quarter encompassing the testing/questionnaire sessions). This figure is a good indicator of the percentage of individuals who worked at *some point* during that 3 month period, which is expected to be higher than the percentage (38%) who reported themselves working at a given point of the period. Eighty-six percent (86%) of those who did report working at the time of the questionnaire had "hard" earnings during the quarter, which is close to the 90% estimate of jobs covered by the state unemployment insurance system (Hughes, 1991).

The UI-reported earnings for the second quarter of 1993 (during which the testing took place) ranged between $0 and $5382. The mean and median quarterly earnings of *all* study participants were $899 and $0, respectively. For those having *some* earnings during the quarter, the mean and median quarterly earnings were $1879 and $1649, respectively.

Reflecting on these data, it is clear that *Steps to Success* graduates who chose to participate in the follow-up testing encompassed a broad range of employment and income situations at the time the test was given. Individuals with no earnings during that quarter (many of whom were likely to have been drawing public assistance) participated, as did individuals with fairly substantial incomes (who likely were not receiving cash assistance at the time).

Additional education and training. Two-thirds (67%) of the respondents reported having taking additional education or training after leaving *Steps to Success*. When asked to detail the education or training they had subsequently taken, various vocational and technical fields were mentioned, particularly the clerical, office support and medical technology fields. Very few mentioned any kind of additional basic skills education or GED preparation.

Overall program effectiveness. When asked if *Steps* could have "better prepared" them, two-thirds (66%) indicated "no". Those who indicated that *Steps* could have better prepared them were asked to elaborate what additional help would have benefited them. Most of the open-ended responses mentioned needing "more time" in the program, not

being "pushed out into the world", "more time for schooling", additional assistance with career/life planning, and other activities prior to entering the labor force.

Perceived basic skill development. The questionnaire asked participants to rate the extent to which they felt their basic skills improved as a result of participating in the ABE/GED classes at *Steps*. Ratings were given on a three-point scale ("No change", "Improved somewhat", "Improved a lot") separately for math, reading and writing. Results are displayed in Figure 6.

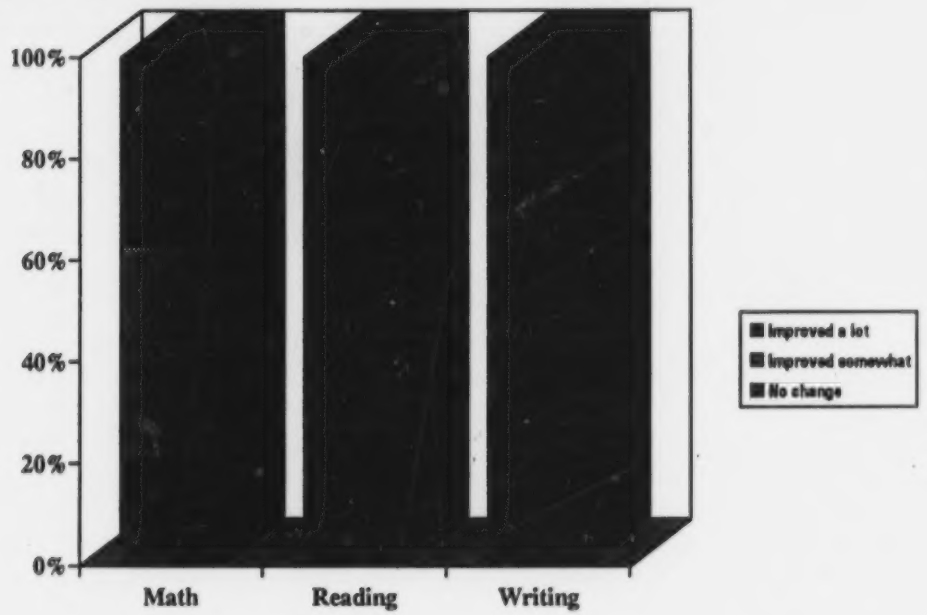

Figure 6. Self-reported ratings of improvements in basic skills.

In each of the skill areas, the most common rating is "improved somewhat", which 42-48% of respondents chose to describe the extent of their skill development. Math skills were more frequently reported as having improved "a lot" than were reading or writing skills. The difference in perceived math and reading improvement is perhaps not surprising considering that the test score gains in math were higher than those in reading; furthermore, both participants and their program counselors tended to see math skills as needing more improvement than reading skills.

Individuals' ratings of improvements in their reading, writing and math skills are moderately but not strongly correlated. Using Kendall's tau-b measure of association among these ordinal-scaled ratings, the following coefficients were calculated: .63 between perceived improvements in reading and writing; .47 between reading and math; and .47 between writing and math. There are thus stronger associations between

perceived improvements in reading and writing than between reading and math or writing and math[26].

Although these results may seem consistent with the assumption that the perceived improvements are closely associated with assessed skill gains, the data indicate otherwise. There is not a close correspondence between test score gain and perceived skill improvement. There were statistically significant math score gains associated with each level of perceived math improvement (average gains of 7.06, 8.82, and 7.88 scale points, respectively). An analysis of variance of math gain among the three rating groups indicates that the differences are not statistically significant ($F_{2,156} = 0.433$, $p = .649$). Although it seems plausible that individuals should be able to differentiate their skill gains retrospectively through such reports, other research suggests that individuals generally have considerable difficulty reporting their literacy proficiencies on scales commensurate with objective assessments and standards. In the recent NALS assessment, for example, there was not a strong correspondence among individuals' assessed functional literacy proficiency and their self-reports of the adequacy of their skills for everyday purposes (Kirsch et al, 1993).

Subsequent welfare utilization. Thirty-seven percent (37%) of the study participants received AFDC payments[27] in July of 1994, a point in time 13-15 months after they took the post-test and completed the questionnaire. Individuals were not necessarily receiving AFDC at the time of the testing (in fact, as noted above, 38% reported being employed at the time of the testing, and 48% had *some* UI earnings during the quarter in which testing took place). But we do know that all participants were *Steps* clients in the JOBS program at some point in the past, ranging from 1-3 years prior to testing and thus about 2-4 years before the subsequent AFDC status "snapshot" being examined here. This welfare snapshot indicator is thus a reasonable measure of the extent to which *Steps* clients return to welfare utilization at a given point in time[28].

Predicting subsequent welfare utilization. Linear discriminant analysis was used to examine the joint effects of numerous variables on future utilization of welfare by *Steps*. The dependent variable in these analyses was a binary "snapshot" indicator of welfare utilization during the month of July, 1994 (0=did not receive AFDC cash assistance; 1=received AFDC cash assistance). Independent variables examined included information from the questionnaire and the math post test and learning gain data. The linear discriminant analyses assess the extent to which combinations of these independent variables (e.g., age, education, math test score) help predict *which* study participants subsequently received AFDC.

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[26]The pattern is much the same if we Pearson correlation coefficients are used: the correlation between perceived improvements in reading and writing is .66, whereas that between reading and math improvement is .51 and that between writing and math is .52.

[27]Individuals who left Oregon and were receiving welfare payments in other states at this time would not be counted as receiving welfare for purposes of this analysis.

[28]We do not have direct data about participants' AFDC status at intermediate points in time, e.g., at the time of post-testing. Thus these data cannot reliably distinguish long-term AFDC recipients from those who receive AFDC intermittently over time.

TABLE 4
Discriminant Analysis of Subsequent Welfare Utilization

Variable (ordered by absolute size of correlation)	Pooled within-group correlation with canonical discriminant function	F to enter or remove
Currently working?	.84779	11.6076**
Math learning gain	.47456	3.9784**
Steps help you get a job?	.16031	1.1812
Math post-test score	.14722	0.0198
Steps help you control your life?	-.09682	3.0652
Receive GED?	.08609	1.6156
Age	.07011	1.7983
Years of schooling	.06052	0.0077
Steps help you become self-sufficient?	.05935	1.0588
Additional education/training after *Steps*?	.05131	0.7462
Steps help you assist your kids?	.04661	0.2184
Could *Steps* have helped you more?	-.04275	0.8900

**F to remove from canonical discriminant function is statistically significant at .05 level; otherwise F to enter canonical discriminant function is not statistically significant at .05 level

Table 4 summarizes the results of this analysis. Only two of the variables shown in the table are statistically significant predictors of subsequent welfare utilization: *math learning gain* and *currently working* (i.e., whether the individual was working at the time of the test in the second quarter of 1993). Learning gains and employment at a given point in time predict less welfare utilization at a future point in time. Neither age, education nor any of the other variables listed in the table helped predict subsequent welfare utilization when *currently working* and *math learning gain* are statistically controlled. Interestingly, the assessed math score (*math post-test score*) is not a significant predictor, only *math learning gain*. Learning itself seems to have decreased welfare dependence among *Steps* clientele.

TABLE 5
Canonical Discriminant Function Coefficients

Variable	Standardized	Unstandardized
Currently working	.88206	1.8488218
Math learning gain	.53144	.0584701
(constant)		-3.0664054

Table 5 displays the coefficients of these two predictive variables in the standardized and unstandardized versions of the canonical discriminant function used to predict future welfare utilization. The discriminant function correctly predicts nearly two-thirds (66%) of the individuals' subsequent welfare status when no prior information is utilized in the calculations (i.e., when being and not being on welfare at the future point in time are assumed to be equally likely). The 66% "hit rate" suggests that the discriminant analysis is moderately effective in a practical sense as well as being statistically significant. The function correctly identified 80% of the clients who actually were receiving AFDC at the time of the future "snapshot", and 58% of those who were not receiving AFDC at the time of the snapshot.

Other variables not measured in this study probably would increase the predictability of future welfare utilization. Changing household composition (e.g., marriages, children) and situational circumstances are not accounted for and are known to substantially impact future welfare dependence (Washington State Institute for Public Policy, 1993). The moderate degree of predictability obtained with these two variables here is therefore of considerable interest.

Predictions for the most disadvantaged clients. As noted previously, direct information is not available about study participants' welfare status at the time of the post-testing. All participants were *Steps* clients and thus welfare recipients at some point in the past. As a way of looking more closely at the relationship between learning gains and future welfare dependence, consider the subset of study participants who had *no UI earnings* at all during the second quarter of 1993, when the testing took place. This forms a group of 85 out of the 163 study participants. These individuals were welfare recipients during one or more periods preceding the post-testing (including at a minimum the period of their participation in *Steps*) and had no UI earnings during the entire second quarter of 1993 when the post-testing took place. The operational assumption made here is that most of these past *Steps* clients having no UI earnings during the quarter when they tested were on welfare at the time of the post-testing[29]. Let us operationally term this subgroup the "most disadvantaged" clients. Although the group is not necessarily composed only of highly disadvantaged welfare recipients, many in the group are likely to be highly disadvantaged clients on welfare at the time of the post-testing[30].

The same discriminant analysis used above with the entire group of participants can be repeated here to predict which of these "most disadvantaged" clients are dependent on welfare a year later. The discriminant analysis indicates that only *math learning gain* is a significant predictor of these clients' future utilization of welfare assistance.($F_{1,83} = 4.451$, $p = .0379$). A direct comparison of the learning gains of the long-term clients who did and did not subsequently receive welfare is shown in Table 6. Although individuals in both

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[29]A counterexample might be a participant who married after leaving *Steps* and needed neither cash assistance nor work at the time of the post-testing to support her family. Although such cases are possible, they are assumed to be relatively infrequent for the purposes of this particular analysis.
[30]But they may well not be so-called "long-term recipients" of AFDC.

groups increased their math skills, those who did not draw cash assistance at the later time point had much larger learning gains (averaging 9.97 scale points) than those who did later draw cash assistance (averaging 5.54 points). An independent samples t-test indicates the difference between the two groups' mean learning gains is statistically significant at the .05 level ($t = 2.11$, $df = 83$, $p = .038$)[31].

TABLE 6
Relationship of Math Learning Gain to Subsequent Welfare Utilization Among "Most Disadvantaged" Clients

Subsequent welfare utilization?	Number of cases	Mean math learning gain	Standard error of mean
No	39	9.97	1.54
Yes	46	5.54	1.42

It is should be noted that the significant relationship here appears to be between skill *gain* (learning, i.e.) and welfare rather than between skill *level* and welfare. The same t-test applied comparing the post-test scores of the two groups finds no significant difference ($t = 0.58$, $df = 83$, $p = .562$). Nor do pre-test scores differ significantly between the two groups ($t = -1.14$, $df = 83$, $p = .258$).

Factor analysis of data. We have looked thus far at several types of data reflecting the experience and perception of participants: their literacy and literacy growth (represented here by math test scores); their perceptions of how *Steps to Success* helped them (including improvements in their basic skills); and their employment, earnings and welfare utilization outcomes. We have observed significant correlational relationships among some of these variables while examining them in somewhat piecemeal fashion so far. In order to synthesize some of our findings, it may help place relationships among these many variables in the context of an underlying framework.

Factor analysis is a statistical technique which can help identify a relatively small number of dimensions or factors underlying the relationships among many interrelated variables. A number of different factor analytic models were initially applied to this study's data in an exploratory fashion, the results of which indicated that a three-factor model is optimal for representing relationships among the 15 variables being considered[32]. Table 7 displays a

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[31]This is a two-tailed test based on equal variances in the two groups. A Levene test of the equality of the two groups' variances supports the null hypothesis of equal variances ($F = 0.015$, $p = .904$). This version of the t-test is equivalent to the statistical test of the F ratio in the foregoing discriminant analysis, where $t^2 = F$.

[32]A number of techniques were used to determine that 3 factors are required to adequately represent the variability among these 15 variables. Maximum likelihood solutions were estimated for 2, 3, 4 and 5 factor models. Such maximum likelihood estimates, under multivariate normality assumptions, have an approximately chi-squared distribution from which goodness-of-fit statistics can be constructed. The

three-factor model from a principal components analysis. The three factors account respectively for 15.0, 14.0 and 11.2% of the variance among these variables (together, the three factors account for 40.2% of the variance).

TABLE 7
Factor Loadings for 3-Factor Principal Components Model (Varimax-Rotated)*

Variable	Factor 1: "Employment"	Factor 2: "Personal Growth"	Factor 3: "Educational Development"
Currently working?	.80931		
UI earnings, 2nd quarter 1993	.78483		
Receive AFDC in July 1994?	-.63057		
Years of schooling			
Steps help you assist your kids?		.70207	
Steps help you control your life?		.69233	
Steps help you become self-sufficient?		.68203	
Steps help you get a job?	.48660	.51251	
Perceived improvement in math skills		.43488	
Math post-test score			.72707
Additional education/training after *Steps*?			.61498
Could *Steps* have helped you more?			.54943
Math learning gain			.46258
Receive GED?			.46205
Age			

*Absolute factor loadings < .35 are not shown here; Appendix A lists the complete factor pattern matrix.

The three rightmost columns display the factor loadings of the variables. Individual factor loadings can range between -1 and +1; high loadings, that is, those closer to +1 or -1, signify stronger relationships between a variable and a factor, whereas loadings closer to 0 indicate weaker relationships. Loadings less than .35 in absolute value are not shown in the table (i.e., the corresponding cells are blank) in order to focus attention here on the variables most influential in these factors (see Appendix A for the complete matrix of factor loadings). The factor matrix was rotated orthogonally into a form that minimizes the number of variables that have high loadings on the given factors in order to make factors easier to interpret (the so-called "varimax" rotation).

The three factors, glossed in the table as "Employment", "Personal Growth" and "Educational Development", are readily interpretable. As the loadings in the table

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goodness-of-fit of the two-factor model has a chi-square statistic of 115.6 with 76 degrees of freedom, which is a highly significant (p = .0023) departure from the null hypothesis of adequate fit. The three-factor model, on the other hand, has a chi-square statistic of 69.7 with 63 degrees of freedom, for which the null hypothesis of adequate fit cannot be rejected (p = .262).

indicate, the first factor, labeled **Employment**, is comprised of current employment status at the time of the testing (2nd quarter 1993), earnings during that quarter, the perception that *Steps* had helped one to find a job, and the later (July 1994) receipt of AFDC. The negative sign for the factor loading of *Receive AFDC in July 1994* indicates, of course, that *not* utilizing AFDC in the future is associated with increasing prior employment and earnings[33].

The second factor, labeled **Personal Growth**, is comprised of former clients' retrospective perceptions of whether *Steps to Success* had assisted them in key program goal areas: helping their kids; controlling their lives; becoming self-sufficient; getting a job; and improving their basic skills. The lack of association found above between clients' ratings of their math skill improvement and their assessed math skill gains is now easier to understand. The perception of skill improvement is associated with other perceived outcomes of *Personal Growth* rather than with the math scores which are part of a distinct *Educational Development* factor. It is also noteworthy that the clients' evaluation of the program's quality ("Could Steps have helped you more?") is part of the third (*Educational Development*) factor rather than of this *Personal Growth* factor. Finally, it should be mentioned that the "did Steps help you get a job?" variable loads heavily in both the *Employment* factor and the *Personal Growth* factor.

The third factor, labeled **Educational Development**, is comprised of variables related to the development and achievement of basic skills (i.e., *math learning gain, math post-test score*)[34], the attainment of a GED certificate (itself a mark of certain academic skills), the pursuit of additional (primarily vocational) education and/or training after leaving *Steps*, and the perception that *Steps* could have better prepared clients for the future. The clustering of the perception that *Steps* could have better prepared clients with the basic skills, GED and continuing education outcomes is consistent with other findings in this study. It was noted above that most of the open-ended responses to the question of how *Steps* could have better prepared clients (asked only if the preceding question was answered affirmatively) referred to additional time for skill development, continuing education and other activities generally seen as preparatory to job search and placement. Furthermore, participants in the focus group also indicated that some clients are more successful (at getting off of welfare and supporting their families) with an early emphasis on academic skill development, continuing education and vocational training before entering into employment. The composition of the Educational Development factor is certainly congruent with this interpretation.

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[33]The fact that math skills and learning gains do not appear here in the Work factor is not necessarily inconsistent with the previous finding that *math learning gain* is significantly associated with decreased future welfare utilization. The present factor analysis looks at the relationship among a broad set of variables (which, in the case of the Employment factor, is dominated by very strong relationships among employment, earnings and welfare dependence). The earlier discriminant analyses looked in a more focused way at the specific relationship between a given pair of variables (i.e., learning gain and future welfare dependence).

[34]We could have just as well included math pre-test score here. Since any one of the three math scores (pre-, post-, gain) is by definition a linear combination of the other two, only two of the three need be included in such an analysis.

DISCUSSION

Literacy Development

Program impact on learning gains. Significant gains in clients' basic skills occurred in both reading and math. Gains for reading, although statistically significant, are more difficult than math gains to identify and associate with other outcomes in this study because so many of the clients scored "off the scale" on reading (i.e., were outside of the accurate range of the testing instruments). Most individuals whose reading skills were in the accurate range exhibited positive gains, which averaged about 4 CASAS scale points. This is comparable to the size of the reading gains reported in other CASAS pre-post comparisons (Fitzgerald & Young, 1994; Iowa Department of Education, 1994; Office of Community College Services, 1994; Sticht and Armstrong, 1993).

The assessed math gains are considerably larger, averaging about 8 scale points, an increase corresponding to about 2-1/2 grade level equivalents among Oregon adults. This increase brought math skills up to a level higher than that of individuals with high school diplomas. Almost all individual learners realized these positive gains. These gains are larger than those generally found in careful studies of adult basic skills development, regardless of the assessment instrument used (Fitzgerald & Young, 1994; Iowa Department of Education, 1994; Sticht, 1994; Sticht & Armstrong, 1993; Office of Community College Services; 1994).

As found in some other studies of adult literacy learning, there is evidence in these data that the magnitude of literacy learning gains is weakly associated with the amount or duration of basic skills instruction provided. A statistically significant, but weak positive correlation was found here between individual learning gains and the quantity of instruction provided by *Steps* (which varied across client cohorts). Analyzing data from the recently completed National Evaluation of Adult Education Programs, Fitzgerald and Young (1994) found evidence of a similar weak positive correlation between quantity of instruction and learner gains (while holding other differences among programs with multiple regression techniques)[35]. Sticht and Armstrong (1993), in a meta-analysis of relationships between the quantity of instruction and average learning gains across a diverse set of programs, also found weak positive correlations between the two.

Sustained learning gains. But unlike most comparisons of pre-test and post-test scores in adult education research, in which both pre- and post-tests are administered during the course of an instructional program, the gains reported here represent *sustained* improvements in literacy skills measured one to three years after the instructional program ended. There is little confusion here between genuine learning and the confounding factors present in the customary programmatic pre-post comparisons. The learning gains

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[35]The correlation between learning and instructional time was somewhat stronger in Fitzgerald and Young's analysis for an ESL as opposed to an ABE or ASE course. But ESL instruction is not involved in the present study.

observed among these *Steps* clients represent genuine literacy development and not the "practice effects" of recent test-taking, or the tendencies of having teachers to "teach to a test" just before a scheduled post-test, or other artifacts often present in traditional techniques of measuring learning gain (Venezky et al, 1993).

Retention of learning. This study not only provides unusually strong evidence of sustained literacy learning, but also evidence that such gains persist over time. As Wagner (1994) has noted, some theorists and policy makers have argued that the learning gains produced by adult literacy education activities may thereafter be lessened by poor retention of skills learned. This study finds no evidence to support such a lack of retention. Examination of the relationship between assessed gain and amount of time since the end of basic skills instruction failed to find the significant negative correlation expected if learning gains progressively diminished over time.

Impact of *Steps* versus other education and training activities. The cohort focus group, in discussing what they had learned through *Steps*, suggested that some individuals' basic skills might have improved, in part, by additional education and/or training taken after leaving *Steps to Success*. To test this possibility, the relationship between learning gains and education and training activities taken after leaving the program needs to be examined. Since details about such continuing education and training activities were collected on the questionnaire, the relationship can be readily examined. As noted above, many individuals (67%) reported taking additional education and training after leaving *Steps*. Very few, however, in detailing the courses taken, indicated that additional basic skills education was involved. Furthermore, a t-test of the difference in learning gains between those who did and did not take additional education/training found no significant difference between the groups ($t = 1.63$, $df = 157$, $p = .168$). There is thus little empirical support for the idea that education and training taken after leaving the program contributed significantly to the observed learning gains.

Impact on GED attainment. There are also clear indications in the GED attainment outcomes of study participants that *Steps* effectively helped clients not only improve their literacy skills, but also to certify those skills through GED testing. As we saw, 22% of those entering the program without a secondary credential attained one by the time of the post-test. This rate is substantially higher than that of the GAIN programs studied in California (Martinson & Friedlander, 1994), though the entering skill levels of participants in the two studies was not comparable (and likely influenced the relative rates of GED attainment).

There is strong evidence here that, as reported for the GAIN program, the basic education track within the *Steps to Success* program is relatively successful in assisting clients to obtain credentials that may help them in the labor market. Other research has shown that in Oregon, possession of a GED credential has salubrious effects on the employment, earnings and societal participation of those who did not complete high school (Reder, 1994b).

Need to reconcile results of *Steps* and GAIN studies. Although results of the present study and the evaluation of GAIN's educational outcomes (Martinson & Friedlander, 1994) are generally in agreement on finding significant programmatic impact on GED attainment, the two studies differ in terms of the measured programmatic impact on clients' assessed literacy skills To consider these somewhat discrepant results carefully, it will be helpful to review some important methodological similarities and differences between the two studies.

Methodological differences between *Steps* and GAIN studies. The two research efforts are similar, to begin with, in being among the very few extant studies of sustained adult literacy gains (i.e., where the final measurement is taken well after the end of the instructional program). Both studies assess sustained literacy learning gains achieved by welfare clientele. Each observes welfare clients' literacy abilities at a point in time well after their prior assignment to a mandated basic skills education component of a welfare reform program (the follow-up periods were roughly 2-3 years for the GAIN study, and 1-3 years in the *Steps* study). In both cases, former clients were offered a modest financial incentive to take a follow-up standardized literacy test and complete a questionnaire about their intervening employment and educational activities.

Despite these similarities, the ways in which the two studies measured programmatic impact on literacy were quite different. The *Steps* study compared clients' literacy abilities using commensurate (i.e., both CASAS-scaled) assessment instruments before and after they participated in the instructional program.. *Individual* learning gains were accordingly measured by comparing a pre- and post-test score on the same scale.

The GAIN study, on the other hand, could *not* measure an individual's learning gain, since the pre- and post-tests were not commensurate. A CASAS instrument was used for the pre-test, but a different standardized functional literacy test, *Tests of Applied Literacy Skills* (TALS), was used for the post-test. The relationship between the two types of assessment instruments is not known, so no attempt was made to compare individuals pre- and post-test levels. Instead, the GAIN study utilized another, and methodologically powerful methodology to assess programmatic impacts. Clients deemed in need of basic education were *randomly assigned* to one of two service streams; one group (called the "experimentals") was mandated to a basic education program (GAIN), whereas the other (termed the "controls") entered the general county welfare program. As expected with such random assignment, the pre-test literacy scores and other background characteristics of the two groups did not differ significantly. Differences observed between the two groups' *post-test* scores are thus presumably attributable to being randomly assigned to the experimental GAIN program. Welfare clientele from five California counties with GAIN programs participated in the study.

The TALS post-test scores of the experimental and control groups, averaging 475 for experimentals and 473 controls, were not statistically different[36]. When results were

[36]Scores reported here, following Martinson and Friedlander (1994), are the sum of the Document and Quantitative scores, each on a 0-500 point scale (summing to 0-1000).

analyzed by the entering CASAS skill level of the clients, there was a trend that the higher the entering skill level, the greater the difference between experimentals' and controls' TALS scores. For example, consider the scores of experimental and control clients whose pre-tests on reading and math were *above* 215 on the CASAS scale; experimentals' TALS post-test scores averaged 18 points higher than controls'. Conversely, among clients whose pre-test scores were *below* 215, TALS scores averaged 17 points lower than those of controls. Despite the apparent trend, which Martinson and Friedlander (1994) and Martinson (1994) take to mean GAIN-like programs tend to serve clients with higher incoming literacy skills more effectively, neither of these differences is statistically significant at the 5 percent level.

When the TALS data were examined separately by county, there was a statistically significant difference (at the 5 percent level) between experimentals and controls only in one of the five counties involved[37]. In San Diego County, experimentals' scores were significantly higher than controls', differing by 34 scale points (out of a 1000), corresponding to 0.36 of a standard deviation. In the other four participating counties, there was no significant difference between the TALS scores of the two groups (Martinson & Friedlander, 1994).

Methodological limitations in GAIN study. There is thus relatively little evidence in the GAIN study suggesting widespread programmatic impact on literacy development. But there is a problem drawing a negative conclusion from this study about the lack of broad programmatic impact on clients' literacy skills. As Martinson and Friedlander (1994) carefully point out, their statistical comparison of the experimental and control groups does *not* estimate literacy gains on a *per participant* basis. The experimental "treatment" was not *participation* in GAIN's basic education program, but *assignment* to it. Some clients so assigned to GAIN (in spite of the "mandate" to attend) chose not to participate at all, and others participated erratically. Furthermore, some of the "controls", who were not assigned to GAIN, participated in other basic skills education programs. Martinson and Friedlander (1994) speculate that this confounding of program participants and non-participants in their analysis effectively reduces the size of the underlying gains made by actual participants, quite possibly to the extent that true underlying gains are no longer statistically significant.

Reconciling the two studies. If, as Martinson and Friedlander suggest, their experimental methodology substantially reduces the apparent gains of those who actually participated in basic education, then the results of the GAIN and *Steps* studies may be easier to reconcile. The sustained learning gains observed among *Steps* CLP Track clientele *do* represent direct individual learning gains. Recalling the scatter plot in Figure 3, almost all *individuals* increased their literacy skills, regardless of entering skill level. The largest program effect size on literacy growth reported for *any* subgroup or county in the GAIN study was 0.36 standard deviations, considerably smaller than the *overall* effect size of 0.77 standard deviations in the *Steps* study. Furthermore, there is no evidence in

[37]Although six counties were involved in the larger GAIN evaluation study, only five of these participated in the TALS testing.

the *Steps* study to support the conclusion some have drawn from the GAIN study, that only those welfare clients entering with skills above 215 on the CASAS scale (or some other threshold) will benefit from a basic education program. If the program is well-designed and clients are appropriately screened, it appears that a basic education program can effectively serve welfare clients having a broad range of literacy skills.

What program factors are associated with successful educational outcomes?

In exploring why GAIN programs produced significant effects only in San Diego County (and there only for those entering with relatively high levels of skill) Martinson and Friedlander (1994) and Martinson (1994) suggested that San Diego County had developed a "unique" adult education program for GAIN clientele:

> "This result appears to be due to the unique nature of the adult education program in San Diego. Unlike any of the other counties, San Diego developed a new and separate system for providing adult education on a county-wide basis. Based on the premise that the existing services offered by the adult education system were not appropriate for the GAIN population because of their previous negative experiences in school, the education services were redesigned to include up-to-date computer-assisted instruction, off-campus locations, a new teaching staff selected for their strong interest and/or experience in teaching disadvantaged adults, a special class for learning disabled students, and close on-site monitoring." (Martinson, 1994, pp. 12-13)

According to local practitioners familiar with the diverse range of adult education programs serving GAIN clients in San Diego County, this is not a particularly apt description of the diversity of programs serving GAIN clients in San Diego County (e.g., see McDonald, Huie, Sticht & Grimes, 1994, for a different description). Nor does the account tell us why only students entering with relatively high levels of skill would benefit. To help us better understand how program characteristics impact learner outcomes, research designs like that of the GAIN study may need to take the varying fit of program and learner characteristics into account in the design of the random assignment process.

Unfortunately, the *Steps* study does not advance our knowledge in this area, either. Although we had originally wanted to contrast the literacy development and post-program life outcomes of leaeners who had and had not taken the front-loaded CLP course, we were not able to do so (as noted above). Even though we have much evidence here that the literacy education within the CLP Track appears to be unusually effective, the design of the study does not enable us to isolate the effects of the CLP course *per se*. Certainly the life-skills instructional focus and grouping of welfare clients in *Steps* literacy education are features shared by many (but not all) of the San Diego County programs serving GAIN clients. But we cannot tell from the GAIN study whether it was the students of those programs who experienced the skill gains while other learners did not.

Methodological concerns about the self-selection of participants in the *Steps* study

In considering the literacy gains broadly experienced by *Steps to Success* clientele participating in the CLP Track, it's important to examine how factors involved in the self-selection of study participants may have influenced the observed results. One possibility is that individuals in the study's target population self-selected on the basis of how they perceived their basic skills to have changed. For example, although all targeted former clients were invited by mail to participate in the follow-up study, perhaps those who felt their basic skills had improved were more likely to participate in the study than those who felt their skills had not improved. As plausible as it might seem, the results of the study are not consistent with such an account. There was a considerable range of perceived improvements in basic skills reported by study participants in the questionnaire, ranging from a sizable group whose members perceived their basic skills not to have changed at all to another group whose members perceived their skills to have improved "a lot". This finding in itself tends to refute the suggestion that only those former clients who felt their basic skills had improved chose to participate in the study, thereby biasing the distribution of observed gains. Since the assessed and perceived skill gains of study participants were found *not* to be statistically related,, it seems quite unlikely that self-selection by members of the target population on the basis of their perceived gains might have appreciably biased the overall distribution of assessed gains.

Although it was noted previously that clients who accepted the invitation to participate in the study had significantly higher pre-test scores than those who did not accept the invitation, there is little reason to suppose that this materially biased the gain observed among those who did participate. Recalling the scatter plot of pre-test and post-test scores examined in Figure 3, it is clear that the vast majority of clients over a broad range of pre-test scores individually experienced positive gains. The most likely explanation for the observed difference between the pre-test scores of the study participants and non-participants is that there is a negative correlation between individuals' literacy skills and their degree of "test-averseness". Individuals who tend not to score well on standardized basic skills tests, according to this account, would be less likely to take another test. Although this hypothetical process would bias the distribution of pre-test scores of those who do take the test, it should not in itself bias the distribution of their observed *gains*. Stronger assumptions would be needed to materially bias the distribution of self-selected test-takers' gains. Although such hypothetical possibilities cannot be entirely ruled out without data from an appropriate control group (and we saw above in the GAIN study how hard it can be to construct appropriate control groups), there is no evidence that such hypothetical factors are operating in the *Steps* study.

Perhaps other variables, such as individuals' employment and welfare status at the time study participants were being recruited, influenced the self-selection process in ways that biased the distribution of observed skill gains. Although data on such variables is not available for non-participating members of the target population, there is little reason to suppose that the possibility of self-selection based on these variables should limit the generality of the conclusions we draw from the analysis of those who did participate. The study participants encompassed a broad range of economic circumstances at the time of

the testing, as reflected in their employment and earnings data (whether taken from self-reported or from "hard" sources). The preponderance of *individual* participants experienced learning gains, regardless of whether they were working full-time, part-time or not at all during that period of time (and, as argued above, many in the last group were likely to have been on welfare at the time). Although it is certainly conceivable that the population estimates of learning gains among the target clientele are biased by some degree of non-representativeness in the self-selected study sample, there is little evidence to suggest that the widespread literacy gains that were observed might somehow have vanished if the study participants had been sampled at random. From characteristics we were able to compare across study participants and non-participants, it is clear that participants were relatively but not fully representative of the target population. Although study participants are not a statistically random sample of the target clientele, it can be said with a reasonable degree of confidence that the program effectively increased the literacy proficiency of participants encompassing a broad range of economic circumstances, educational backgrounds and initial literacy abilities.

Several other possible sources of bias considered, as well. Many opinions were offered -- by the cohort focus group, by the testing administrators and other *Steps* staff, by other JOBS program and welfare officials -- as to who from among those invited to participate in the study -- might selectively volunteer to do so. The range of suggestions offered reflects a diverse set of outlooks on and understandings of the program, its clientele and the characteristics of "the system". For example, some staff predicted that "only those needing the money" would turn out, whereas another felt that former clients would come "out of loyalty to the program". A third suggestion was that "only people doing something" (i.e., working or going to school) would turn up. None of these suggestions turns out to accurately characterize the full range of study participants. As shown above, the participants cut across a broad range of employment and income situations at the time of the testing. A significant number were "doing nothing" at the time: they had neither taken additional education or training since leaving *Steps* nor were employed at the time of the testing.

In sum, although it is clear that the realized sample of study participants is not fully representative of the target population in a statistical sense, there is little reason to suppose that study participants self-selected on a narrow basis or one that seriously limits our ability to generalize the learning gain outcomes to the target population of clientele.

Impact of Literacy Development on Welfare Dependence

A primary rationale for including basic skills education in JOBS programs such as *Steps to Success*, of course, is to facilitate clients' long-term independence from the welfare system. The assumption has been, as discussed in the introduction, that lack of educational credentials and poorly developed literacy skills are barriers to attaining and maintaining the employment and earnings needed to support a family.

Some "hard" evidence of economic impact. This study provides clear evidence that not only can appropriate basic education services increase welfare clients' literacy skills, but that these learning gains are significantly linked to future reductions in welfare dependence. The evidence for this are statistical tests of whether clients' literacy learning gains (measured during the second quarter of 1993) were associated with their subsequent welfare status in a "snapshot" taken during July, 1994. Statistical tests conducted indicated that the larger the assessed learning gain, the less likely a client was to be on welfare in the future. Furthermore, increased literacy appears to be particularly potent as a predictor of future self-sufficiency among clients operationally defined here as being the most disadvantaged (i.e., those who had no earnings at all during the second quarter of 1993). These results may be the first hard evidence that programmatically stimulated literacy development reduces clients' future welfare dependence.

The role of literacy education in welfare-to-work programs. The discriminant analysis which predicted clients' future welfare dependence from other variables measured in the study found two variables to be important: literacy growth and current employment. This result suggests that both kinds of activity tracks in *Steps* (i.e., the CLP and Placement Tracks) may be important to maintain within future welfare reform programs. This finding, coupled with the finding that literacy growth alone (and not current employment) predicts future welfare dependence among the "most disadvantaged" clients suggests a human capital approach to welfare reform should be utilized in some contexts.

Cautionary notes. Comparable welfare status data are not available for target *Steps* clients who did not participate in the study. But there is no particular reason to suppose that the self-selection process operating during study recruitment is responsible for the relationship observed between study participants' learning gains and their future welfare dependence. Recall that we were relatively confident in generalizing learning gain outcomes from study participants to non-participants in part because of the comparisons we were able to make between the educational and literacy characteristics of the two groups. It would be prudent, however, to be more cautious in generalizing results about future welfare dependence because there are not comparable data available about the employment, earnings and welfare status of the two groups. Nevertheless, it can be confidently stated say that the results relating literacy growth to future self-sufficiency seem to hold for clients from a broad spectrum of economic circumstances.

It is important to point out, however, that these results do *not* constitute direct evidence that participation in *Steps* CLP Track decreases clients' future dependency rates. Direct evidence for that would require finding an *overall* difference in dependency rates between comparable client populations participating and not participating in the CLP track. All that the present results indicate is that among those who do participate in the CLP Track, the larger the literacy gains they achieve, the less likely is their future welfare dependence. And this holds especially for the apparently "most disadvantaged" clients.

Needed research. There are two ways in which the needed overall comparison might be obtained. One technique would involve gathering information about a sizable population

of program clients who met *Steps* eligibility criteria for the CLP Track. Information would be culled from agency records about client background characteristics, participation in various program activities (including CLP and basic skills education, and post-*Steps* employment and welfare outcomes. Assuming that not all *Steps* clients eligible for the CLP Track were in fact assigned to it (a tenable assumption because of the limited number of "slots" available in that track), outcomes of those participating and not participating in the CLP Track could be compared, either matching groups or controlling for group differences statistically. Such an approach might have been feasible in the present study had outcome data been available for appropriate groups of clients[38].

An even stronger approach might be the experimental or random assignment methodology used by Manpower Demonstration Research Corporation (MDRC) in its evaluation studies of the GAIN program[39]. This would entail randomly assigning *some* clients deemed in need basic education to the CLP track and others to the Placement Track. As overall GAIN evaluation studies (Friedlander, Riccio & Freedman, 1993) illustrate, this experimental method pioneered by MDRC allows differences in measured outcomes between experimentals and controls to be unambiguously attributed to the experimental program. Although this approach seems to work well for evaluating overall program impact, as we saw in discussing the evaluation of GAIN's educational outcomes, it can be difficult to isolate the impact of the basic educational components within a welfare-to-work program. Further methodological refinements are needed.

Client Perceptions of Literacy Development

Members of the cohort focus group, the testing session administrators (many of whom had extensive experience with other *Steps* clientele), and numerous program staff and JOBS program officials perceived that some students improved their basic skills (by going through the CLP Track) while others did not. That is exactly what the study participants reported about whether their own skills had improved: Some of the questionnaire respondents reported that their skills had improved, whereas others did not. That much seems straightforward and unremarkable.

What is striking, however, is the lack of relationship found between individuals' reports of improvements in their basic skills and assessed gains in those skills. As surprising as such results may seem, they are consistent with other research which shows how poorly adults evaluate the adequacy or growth of their literacy skills in relation to external criteria. In the recently completed NALS study, for example, the vast majority of individuals whose skills were judged to be lacking in terms of actual performance nevertheless felt their skills were adequate for everyday purposes (Kirsch et al, 1993).

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[38]New regulations were put into place during the course of the study which severely limited access to client records.

[39]*Steps to Success* is in fact now participating in an MDRC evaluation study of Oregon's JOBS program; unfortunately, educational outcomes are not included in the study.

At the same time, it should be noted that *some* skill differences are very apparent to adult learners. Members of the cohort focus group and many of the clients participating in the testing (according to their test administrators) remarked about how much better their reading skills were than their math skills. And how much "harder" the math test seemed than the reading test. These perceptions correspond to an overall 20 scale-point difference between the average reading and math scores, suggesting perhaps that large enough skill differences are accurately self-perceived. Perhaps the smaller math *gains* clients experienced, which may have accrued slowly over time, were just not large enough to be reliably noticed.

Members of the cohort focus group, in discussing their just completed experience of taking the test and completing the questionnaire, emphasized how poorly they felt that "that kind of" test measures the learning almost everyone felt did occur in *Steps*. These learners felt that the reading and math tests did not measure what they had learned in *Steps*, which they said emphasized "personal growth", "endurance", "how to stay off welfare", "how to advocate for yourself" and other aspects of the "whole person" and "goal-related" accomplishments. From one perspective, it sounds as if the focus group was describing the learning they most valued or which had helped them the most, which was not the basic skills instruction but the content of the Career and Life Planning course. But when probed to elaborate, it became clear that they felt the improvements which some had made in reading, writing and math could not be measured separately from the other learning that had taken place at the same time.

There were also indications from many of the *Steps* staff that they felt standardized tests like BASIS and CASAS were "not aligned" with the content of what they were teaching and what clients were learning. There again seems to be a perception that what was taught (and assessed) "on the other side of the building" (the ABE/GED classrooms, i.e.) was not appropriately integrated with the broader and more personally-relevant material taught in Career and Life Planning.

It is not entirely clear what role such divisions of content might play in the apparent non-alignment between clients' self-perceived and assessed gains in basic skills. But, whatever its genesis, the lack of correspondence between perceived and assessed learning represents something significant to clients. It should be considered as much more than a mere methodological or theoretical curiosity. When adults' perceptions of the adequacy of their skills do not correspond with those of program personnel and policy (which are often test-driven), it may be extremely difficult to motivate their participation in basic skills training (Reder & Green, 1985; Wikelund et al, 1992). Program retention may further deteriorate if learners' perceptions of their skill development do not correspond with indicators of progress used by program policy and personnel.

Three Factors in Search of a Program: *Employment, Personal Growth* and *Educational Development*

When the many variables involved in this study were represented in terms of a few underlying constructs using the techniques of factor analysis, an interesting pattern emerged which can inform the foregoing discussion about client perceptions of literacy learning and program impact. Recall that the factor analysis identified three major factors underlying client outcomes and perceptions, labeled *Employment*, *Personal Growth* and *Educational Development*. The *Employment* factor -- on which load the outcomes of employment, income, welfare dependence and the perception that *Steps* helped clients get a job -- seems straightforward to understand. It corresponds to clients' experiences of leaving *Steps* and entering the world of work and self-sufficiency for themselves and their families. This, of course, is the primary policy and programmatic goal of *Steps to Success* and other welfare-to-work programs.

The other two major factors, *Personal Growth* and *Educational Development*, correspond to the main strategies for assisting CLP Track clients to accomplish the goal of *Employment*, the welfare-to-work transition. Former clients' perceptions about whether *Steps to Success* had assisted them in key areas -- helping their kids; controlling their lives; becoming self-sufficient; and getting a job -- loaded highly on *Personal Growth*, along with perceptions of how much their basic skills had improved. The fact that perceived improvements in literacy skills are part of *Personal Growth* rather than *Educational Development* (where *assessed* gains in basic skills load) may be very important. If adult literacy learners' *perceptions* of growth in their basic skills influence their participation in instruction, then these results indicate that participation in adult education may depend on broader perceptions that learners' felt needs for *Personal Growth* are being met. This pattern of perceptions among *Steps* literacy students is certainly consistent with emerging new theories of participation for adult learners (e.g., Wikeland et al, 1992).

The variables of literacy development, GED attainment, taking additional education or training after leaving *Steps*, and the perception that *Steps* could have better prepared clients all load highly on the *Educational Development* factor. The fact that the perception that *Steps* could have better prepared clients loads on *Educational Development* (rather than on *Personal Growth* where other perceived impacts of *Steps* load) together with outcomes for assessed basic skills improvement, GED attainment and continuing education is consistent with other findings in this study. Most open-ended responses to the question of how *Steps* could have better prepared clients referred to additional time for skill development, continuing education and other activities generally seen as preparatory to job search and placement. Furthermore, the cohort focus group suggested that some clients are more successful (at getting off of welfare and supporting their families) with an early emphasis on academic skill development, continuing education

and vocational training before entering into employment. Other clients may not be so favorably disposed towards or helped by *Educational Development*.[40]

The factor analysis of client perceptions and outcomes is consistent with the rich and often heartfelt comments heard from the cohort focus group and throughout Wikelund's (1993) in-depth qualitative research. Most welfare clients reported experiencing a distinction if not a tension between "personal" and "academic" growth. Frequently, the two types of growth were perceived as being in opposition to one another within the priorities of *Steps* and within the larger welfare system clients negotiated. Although it may seem reasonable from a programmatic perspective to separate basic educational services into two components (i.e., into Career and Life Planning, which directly addresses *Personal Growth*, and ABE/GED which relates directly to *Educational Development*), many clients expressed strong opinions about not wanting to lose more CLP-like support as a price of receiving basic skills instruction. Most clients valued most the "personal" growth that had taken place at *Steps*. Among clients who had attained economic self-sufficiency felt in retrospect that the personal growth stimulated by Steps was crucial in successfully making a transition from welfare-to-work: "We learned how to make a commitment"; "we got endurance and self-reliance"; "we learned how to communicate with people"; "how to advocate for ourselves"; "how to stay off welfare"; "how to have confidence in myself".

Many clients wanted the kinds of support they received from CLP to have continued after the end of the CLP course, while participating in basic skills instruction, and even after finding a job, leaving *Steps* and starting to work. "That's the time," one client remarked referring to the difficulties of making a transition to full-time employment, "when you *really* need support from others dealing with the same problems -- trying to take care of your kids and work at the same time!" They suggested that even continuing some of the support-group and counseling activities, launched during CLP, on perhaps a monthly basis during the evenings after work would be extremely helpful to those struggling to "make it" in the workplace[41].

Discussions with *Steps* staff also indicated that they, too, believe that finding ways to integrate educational, counseling and group-support services on a longer-lasting, post-employment basis is a key to having greater programmatic impact. Staff and cohort members alike feel that literacy education will be more effective in the long run if it is integrated with other instructional and support activities (such as those offered in CLP). One staff member noted that "providing basic skills instruction based on a holistic view of clients encourages personally relevant participation and skill development".

There are thus some indications here that providing services in a more integrated or at least in a temporally overlapping manner might better meet the needs of clients and assist

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[40]Interestingly, Educational Development is the only factor of the three whose factor scores have a bimodal distribution among clients. Whether this corresponds to there being two underlying "types" of clients in terms of orientation to Educational Development requires further analysis.

[41]A related development is now taking place at *Steps*. A grant was received specifically to provide services in this fashion after clients begin working.

them to reach their goals in the areas of *Employment, Personal Growth* and *Educational Development*. One key to stimulating even more effective basic skills instruction (and there's ample evidence in this study that the existing programs have already been quite effective) may be to imbed and intertwine literacy instruction with program components such as CLP, rather than structuring them as separate activities to be taken in sequence.

These results should challenge policy-makers and program designers to re-examine their assumptions about the ways in which "hard" outcomes (e.g. welfare dependence, employment, earnings, assessed literacy skills) and "soft" outcomes (e.g., self-esteem, felt needs, perceived improvements of basic skills) are related to each other and to literacy development among welfare clientele. The findings of the study suggest that too often they are assumed to be independent of each other. Holistic views of both clients as learners and of programs as learning environments may be a useful starting point for this re-examination.

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APPENDIX A

Factor Loadings for the 3-Factor Principal Components Solution

Variable	Factor 1	Factor 2	Factor 3
Currently working?	.80931	.05421	-.09498
UI earnings, 2nd quarter 1993	.78483	-.09372	.05297
Receive AFDC in July 1994?	-.63057	.18940	-.08208
Years of schooling	.24704	.15990	.20577
Steps help you assist your kids?	.01821	.70207	.19294
Steps help you control your life?	-.25409	.69233	-.04623
Steps help you become self-sufficient?	.06830	.68203	-.28698
Steps help you get a job?	.48660	.51251	-.07682
Perceived improvement in math skills	-.02363	.43488	.04247
Math post-test score	.13799	-.01888	.72707
Additional education/training after *Steps*?	.12603	.03531	.61498
Could *Steps* have helped you more?	-.08299	-.23213	.54943
Math learning gain	.03515	-.16381	.46258
Have GED?	-.05266	.11773	.46205
Age	.01328	-.05259	-.25880

APPENDIX B

Sample Correspondence and Administration Procedures

Northwest
Regional
Educational
Laboratory

101 S.W. Main Street, Suite 500 · Portland, Oregon 97204-3297
(503) 275-9500 GTE: NWREL.LAB FAX: (503) 275-9489

Writer's Direct Dial Number

March 17, 1993

Dear *Steps To Success* graduate:

You have the opportunity to receive $25 for participating in a brief activity. We are conducting a research project looking at the impact of programs like *Steps To Success* on adults' lives -- do they make a difference? We hope our findings can help these programs to improve.

We are inviting you -- and a sample of others who went through *Steps* -- to come to a brief meeting to provide us with some information for our study. At the meeting, you will fill out a brief questionnaire and take a multiple choice skills test (similar to one you probably took when you entered Steps).

The information you provide will be confidential. No individual information or test scores will be given to any agency.

If you participate in one of these sessions (lasting about 1-1/2 hours) you will receive a $25 stipend at that time. Because the stipend is intended to cover your costs of participating, it will not be reported to the Internal Revenue Service or Oregon Department of Revenue. If you are currently receiving a welfare grant, in most cases it will not count as part of your earnings disregard. (Please see the attached letter from Mt. Hood Community College or check with your caseworker if you have a question about this.)

You can come to one of the sessions listed on the back. We hope one of the dates, times and locations will be convenient for you. Parking is available at all locations.

We hope you will be able to participate. So we can have your check ready, **you must pre-register** for a session by returning the enclosed postage-paid reply card. Space is limited. Please return the card as soon as possible. After receiving your reply card, we will send you a confirmation notice.

We look forward to seeing you. Thank you for your assistance.

Sincerely,

S Reder

Stephen Reder
Program Director

Enclosures

AN EQUAL OPPORTUNITY EMPLOYER

Portland Community College
Southeast Center
2850 S.E. 82nd
Portland, Oregon 97266

Session #1: Monday, April 5, 1993, 7:00 p.m., Room B-16

Session #2: Wednesday, April 7, 1993, 2:00 p.m., Room B-22

Session #3: Tuesday, April 13, 1993, 3:30 p.m., Room B-16

Session #4: Saturday, April 17, 1993, 10:00 a.m., Room C-4

Session #5: Thursday, April 22, 1993, 7:00 p.m., Room C-2

Session #6: Saturday, April 24, 1993, 1:00 p.m., Room D-1

Mt. Hood Community College
Centennial Mt. Hood Center
14750 S.E. Clinton Street
Portland, Oregon 97236

All tests will be given in Room 2.

Session #7: Wednesday, April 7, 1993, 7:00 p.m.

Session #8: Tuesday, April 13, 1993, 7:00 p.m.

Session #9: Friday, April 16, 1993, 10:30 a.m.

Session #10: Thursday, April 29, 1993, 1:30 p.m.

Session #11: Saturday May 1, 1993, 9:00 a.m.

Session #12: Saturday May 8, 1993, 9:00 a.m.

Mt. Hood Community College - Main Campus
26000 S.E. Stark Street
Gresham, Oregon 97030

All tests will be given in Room 1008 (lower level).

Session #13: Saturday, April 10, 1993, 9:00 a.m.

Session #14: Wednesday, April 14, 1993, 1:00 p.m.

Session #15: Tuesday, April 20, 1993, 7:00 p.m.

Session #16: Wednesday, April 21, 1993, 2:00 p.m.

Session #17: Saturday, April 24, 1993, 10:00 a.m.

Session #18: Tuesday, April 27, 1993, 7:00 p.m.

Northwest
Regional
Educational
Laboratory

101 S.W. Main Street, Suite 500 · Portland, Oregon 97204-3297
(503) 275-9500 GTE: NWREL.LAB FAX: (503) 275-9489

Writer's Direct Dial Number

May 24, 1993

Dear *Steps To Success* graduate:

This is it! "For a limited time only"...You have the opportunity to receive $25! If you couldn't participate in the *Steps to Success* research project in April, you now have another chance!

As you may recall, we are conducting a study to look at the impact of programs like Steps to Success on adults' lives -- do they make a difference? We hope our findings can help these programs to improve.

We are inviting you -- and a sample of others who went through Steps -- to come to a brief meeting to help us with our study. At the meeting, you will be asked to fill out a very short questionnaire and take a multiple choice skills test (similar to one you probably took when you entered Steps).

The information you provide will be confidential. No individual information or test scores will be given to any agency.

If you participate in one of these sessions (lasting about 2 hours), you will receive a $25 stipend at that time. Because the stipend is intended to cover your costs of participating, it will not be reported to the Internal Revenue Service or Oregon Department of Revenue. If you are currently receiving a welfare grant, in most cases it will not count as part of your earnings disregard. (If you have a question about this, please check with your caseworker.)

You can choose one of the sessions listed on the back of this letter. We hope one of the dates, times and locations will be convenient for you. Parking is available at all locations.

We need your help now and hope you can come! So we can have your check ready for you, **you must pre-register** for a session by returning the enclosed postage-paid reply card. Please return the card as soon as possible. After receiving your reply card, we will send you a confirmation notice.

We look forward to seeing you. Thanks for your help!

Sincerely,

Stephen Reder
Program Director

Enclosure

AN EQUAL OPPORTUNITY EMPLOYER

Test Session Dates, Times and Locations

Portland Community College
Southeast Center
2850 S.E. 82nd
Portland, Oregon 97266

Session #21: Saturday, June 12, 1993, 10:00 a.m., Room C-2
Session #22: Tuesday, June 15, 1993, 2:30 p.m., Room C-2
Session #23: Thursday, June 17, 1993, 6:30 p.m., Room C-2

Mt. Hood Community College
Centennial Mt. Hood Center
14750 S.E. Clinton Street
Portland, Oregon 97236

Session #24: Monday, June 14, 1993, 6:00 p.m., Room 2
Session #25: Wednesday, June 16, 1993, 2:30 p.m., Room 2
Session #26: Saturday June 19, 1993, 10:00 a.m., Room 2

INSTRUCTIONS FOR TEST ADMINISTRATORS

1. Please show up at the test location 15 minutes before the scheduled time to allow time for getting set up.

2. You should bring to each session :

- o 25 CASAS Reading and 25 CASAS Math test booklets
- o printed roster of preregistered participants for the particular session
- o 50 scanable answer sheets, precoded with session number and other info (25 Reading , 25 Math)
- o 40 No. 2 pencils and 25 pens
- o 25 questionnaires
- o batch of preprinted Claim for Stipend forms for the given session (number varies with roster length)
- o printed NWREL checks for participants (number varies with roster length)
- o Ink pens for signatures
- o A few pencil sharpeners

3. If an emergency situation arises in which you cannot arrive at the testing location on time, you **MUST** contact the backup person who will work with you to figure out how to get the materials from you and get to the testing location on time!

4. Before participants arrive, place a pen and a No. 2 pencil on each individual desk.

5. As participants arrive, check each one off against your roster of preregistered participants.

6. **Only individuals on the roster for a given session may participate in that session**. If individuals turn up who are not on the roster for the given session, they may not under any circumstances participate. They may contact Sherryl Glenn at NWREL (M-F 8:30-5:00) at 275-9592 to arrange a future testing session (assuming they previously received an invitation from us).

7. As soon as all preregistered participants have arrived or 7 minutes have past since the designated starting time (whichever comes first), close the door to the room. **Individuals who arrive after you close the door (for whatever reason) cannot participate**. They may call Sherryl Glenn at NWREL (M-F 8:30-5:00) at 275-9592 to schedule another testing session.

8. Give each person a questionnaire and Claim for Stipend form. Ask them to complete the questionnaire and sign the Claim for Stipend form **in ink** and put their Social Security Number on it. (This should take about 5-7 minutes.) Collect the completed questionnaires and Claim forms **and the pens,** making sure that both the questionnaire and the form have the individual's name and Social Security Number on them. (Some items on the questionnaire are voluntary and may be left blank.)

9. Distribute the Reading test booklets with Reading answer sheets inserted. Have participants fill in their names and social security numbers carefully in the appropriate sections. Read the instructions aloud for using the answer sheets. Have participants answer the practice items on the answer sheet. Explain the way to mark "X" over an item they want to erase, saving them to erase completely for the end of the session.

10. Read the instructions aloud for the Reading questions. Remind them not to mark the test booklet in any way. Tell them there will be 40 minutes available for the items, and that if they finish early, they must remain quietly seated until everyone has finished or the 40 minutes have expired. Write the ending time on the board.

11. Begin the Reading session. Allow 40 minutes maximum. Be sure to monitor the session and make extra No. 2 pencils available as needed.

12. While participants are taking the Reading test, make sure that the information on the roster and on the questionnaires match. Check each Claim for Stipend form again to see that both signature and Social Security Number have been filled in appropriately. If the form is correctly completed, tear out the yellow copy and place it with the individual's check to be handed out at the end of the testing session.

13. As soon as everyone has finished or 40 minutes have expired, ask participants to close their test booklets and take one minute to erase their "X"-ed out answers. Collect the answer sheets and test booklets. Make sure each answer sheet has a name and correct social security number on it.

14. Negotiate a firm break period of 5-10 minutes. Make it clear that the shorter the break, the sooner they'll be finished.

15. Once the break is over, close the door to the room and distribute the Math booklets, with scratch paper and Math answer sheets inserted. Have participants fill in their names and social security numbers on the answer sheets. Have them fill in the practice items on the answer sheets.

16. Read the instructions aloud for the Math questions. Remind them not to mark the test booklet in any way - that's what the scratch paper is for! Tell them there will be 40 minutes available for the items, and that if they finish early, they must remain quietly seated until everyone has finished or the 40 minutes have expired. Write the ending time on the board.

17. Begin the Math section. Allow 40 minutes maximum. Be sure to monitor the session and make extra No. 2 pencils available as needed.

18. As soon as everyone has finished or 40 minutes have expired, ask participants to close their test booklets and take one minute to erase their "X"-ed out answers.

19. When everyone has finished cleaning up their answer sheets, ask participants to form a line to bring their test booklets, answer sheets, scratch paper and pencils to you so they can receive a copy of their Claim for Stipend and their stipend check.

20. Collect a test booklet, answer sheet, scratch paper and pencil from each person. Make sure that each person's name and SSN are appropriately recorded on the answer sheet.

21. To receive a check, each individual must have completed and turned in a questionnaire, a Claim for Stipend form, and two answer sheets (one Reading and one Math) -- all of which you have checked against the roster. If all of these are complete, give them their check and the yellow copy of the Claim for Stipend form, and thank them for their participation in this project.

22. At the end of the session, be sure the roster checklist is complete and reorganize the test booklets, pens, pencils and other materials you'll need for the next session. Also, please be sure that left over checks are returned to NWREL along with the completed answer sheets, Claim for Stipend forms and questionnaires.

APPENDIX D

QUESTIONNAIRE

Name _____ Social Security #_____-____-_____

Age ___ Highest school grade completed ___

About when did you enter the Steps to Success Program? Month ____ Year ____
About when did you leave the Steps to Success Program? Month ____ Year ____

Did you go to a Life Skills/Career and Life Planning course in Steps? Yes __ No__
If "yes", about how often did you go?___ hours a day ___ days a week for ___ weeks

About how often did you attend ABE/GED classes at Steps?
___ hours a day , ___ days a week for ___ weeks

How much do you feel your skills improved?

Reading	No change __	Improved somewhat ___	Improved a lot __
Math	No change __	Improved somewhat ___	Improved a lot __
Writing	No change __	Improved somewhat ___	Improved a lot __

Since you completed the Steps program, have you participated in any additional education or training? Yes___ No___ If "Yes", list each education or training course you took:

Course Name	How many months?
_____	
_____	
_____	

In which areas has Steps to Success made a difference to you?

Getting a job:	Yes __	No __
Helping my kids:	Yes __	No __
Controlling my life:	Yes __	No __
Improved self-sufficiency:	Yes __	No __

As you think about your life since you left the program, do you feel there is some way that Steps to Success could have better prepared you ? Yes___ No___
If "Yes", please describe: _____
_____

Are you employed at the moment? Yes___ No___
If "Yes", what kind of work? _____ Is it: Full-time___ Part-time ___

APPENDIX C

Additional Information about BASIS Test

BASIS Score Interpretation

Score: < 200 Level A	• Difficulty with basic literacy and computation skillls necessary to function in both employment and in the community • Difficulty providing basic personal identification in written form (job applications) • Unable to compute wages and paycheck deductions • Unable to follow basic simple written directions
Score: 200-215 Level B	• Possessing low literacy skills • Difficulty pursuing other than entry level programs requiring minimal skills • Can fill out simple forms and perform basic computations • Functioning below 5th grade level
Score: 216-230 Level C	• Able to handle basic literacy tasks and basic computational skills in a functional setting related to employment • Capable of minimum wage job if carefully selected • Difficulty following more complex sets of directions
Score: 231-235 Level C (Pre-GED)	• Can usually perform work that involves following oral and written directions in familiar and some unfamiliar situations • Functioning at a junior high level in basic reading and math • Could benefit from preliminary GED preparation
Score: 236+ GED	• Functioning at a secondary level in reading and math • High probability of passing the GED with some preparation

NOTE: The average score of Oregon participants reporting the 8th grade as highest grade completed:

Reading: 235

Math: 213

BEST COPY AVAILABLE

HAMILTON LOCAL SCHOOLS
Columbus, Ohio 43207

Application For Use of Personal Leave

Employee's Name _____

Date(s) For Which Personal Leave is Requested _____

_____

Purpose for Which Leave is Requested _____

_____

Signature _____

Date _____

Approved _____ Not Approved _____

Principal _____

Complete this form in triplicate. One copy will be returned after acted on by the Principal; one copy retained by the Principal; one copy to the Superintendent's Office.

BEST COPY AVAILABLE

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